

# 1937

## MASTER CATALOG

of

## AIR CONDITIONING

## & REFRIGERATION



Equipment, Accessories, Parts,  
Materials, Supplies and Tools

THE  
RED  
BOOK

# Complete Market Coverage

What type of business concerns will prove to be successful in selling air conditioning in 1937?

What kind of dealers will decide to go into the household appliance business next year?

What kind of jobbers will install refrigeration supply departments?

How many service men will set up shops and become buyers of parts and tools?

How many "factors" will constitute the market for refrigeration and air-conditioning equipment during the coming year?

What is the most direct and economical method of reaching all these prospective buyers?

While manufacturers are seeking lists of distributors, dealers, contracting and service companies, and other special groups, these same groups are seeking information in regard to sources of supply. They are looking for new lines, new connections, product information, engineering and application data, specifications. The 1937 Master Catalog of Air Conditioning and Refrigeration Equipment is being issued to meet this situation.

It will cover all groups—manufacturers,

distributors, jobbers, dealers, contractors, installation and service companies and large buyers, and will blanket the market with 50,000 copies, covering both the original equipment and replacement fields.

The Master Catalog offers every manufacturer a rare opportunity to *cover the market* with his sales message at unusually low cost. It will be cheaper than direct mail.

The page size is 8½ inches by 11 inches. A very attractive rate is offered for inserts. To be published March 1, 1937. Write for advertising rates and full information.

## Business News Publishing Co.

Publishers of Air Conditioning and Refrigeration News

5229 Cass Ave., Detroit, Mich.

Advertising Representative: John B. Gallagher Co., Inc.—New York and Chicago

# 50,000 COPIES



# REFRIGERATION NEWS

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## Sealed Units to Be Used in All 1937 Hotpoints

**Five-Year Protection Plan Carried on 16 Models in Three Price Groups**

CHICAGO—All models of the 1937 Hotpoint line of household electric refrigerators will have the new "Thrift-master" hermetically sealed condensing units, it was disclosed at a preview showing of 1937 Hotpoint products held here recently by Edison General Electric Appliance Co. for a group of utility executives. R. W. Turnbull, new vice president and general sales manager of the company, directed the showing.

As presented by Harry Mealey, refrigerator division manager, the 1937 refrigerator line will include 16 models, split up into three series: standard (low priced), deluxe (medium priced), and Imperial (higher priced).

The new Thriftmaster unit, which is said to afford greater refrigeration capacity, will carry a 5-year service protection plan. Another new mechanical feature of the 1937 Hotpoint line is a "speed freezer" which is claimed to cut down freezing time on ice cubes and desserts.

All-steel cabinets are attractively styled, with rounded corners and cabinet door flush with the top (some models have a V-design door). Name—

**187,027 Kelvinators Shipped in 11 Mos.**

DETROIT—Shipments of Kelvinator domestic refrigerators show an increase of 33.3% for the first 11 months of 1936, compared to the corresponding period last year, according to M. S. Bandoli, manager of domestic sales. Unit shipments for the period were 187,027, compared to 140,245 units for the same 11 months last year.

## Henry Ford Sets Machinery in Motion In Detroit 'New American' Home

DETROIT—Holding an old-fashioned oil lamp in front of an "electric eye," Henry Ford on Monday set in motion all the electrical equipment of the first of 12 New American Homes being built here under the sponsorship of the General Electric Co.

Dedication of the Detroit home coincided with the nation-wide dedication of G-E's entire New American Home program.

Carl Snyder, manager of the G-E Home Bureau, New York City, under whose sponsorship these American Homes are being built, greeted Mr. Ford on behalf of Gerard Swope, president, and Owen D. Young, chairman of the board of General Electric Co.

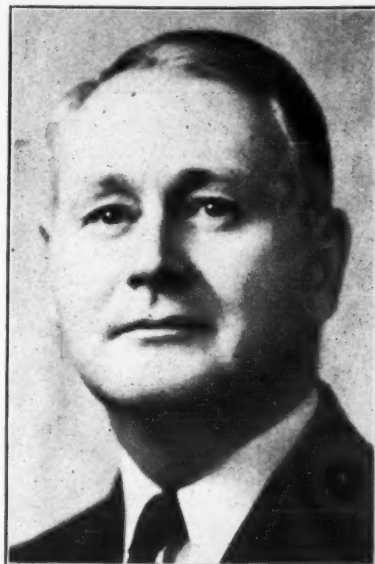
The Detroit ceremony was perfectly synchronized with G-E's "Hour of

Charm" program broadcast regularly from New York, and the radio was automatically tuned in just as G-E's President Swope expressed his thanks to Mr. Ford for his interest in the New American Home program. A statement by Mr. Ford was then broadcast, which read:

"The great manufacturing plants of which we in the United States are rightly proud, are not an end in themselves, but an instrument that we have forged to achieve a fuller life. The true index to the development of any civilization must be the home. Better tools and more efficient machines justify themselves only as they provide more and better products for more people at less cost, and bring to the average man the opportunity to

(Concluded on Page 7, Column 2)

## Copeland Executive



JAMES D. McLEOD

**Conditioner Sales Total \$4,172,028 in October**

WASHINGTON, D. C.—Dollar value of orders for air-conditioning systems and equipment booked during October by 98 leading manufacturers totaled \$4,172,028, according to figures released last week by Director William L. Austin of the Bureau of the Census, Department of Commerce.

October orders represented an increase of 24.5% over the \$3,351,999 reported during September by the same group of manufacturers. The figure for the month is just \$240,653 behind May, the year's peak month, when orders totaling \$4,412,681 were reported.

Total orders booked during the first 10 months of the year valued at \$35,680,483. Of this amount, \$15,731,724 is in the air-conditioning group, \$11,916,654 in the fan group, and \$8,032,105 in the unit heater group.

October sales in the three groups were as follows: air conditioners—

(Concluded on Page 2, Column 3)

## Copeland Takes Over Sales of Household Line

**Distributor-Dealer Setup To Be Used; McLeod Directs Sales**

DETROIT—Sales of Copeland household electric refrigerators, which for the past year were handled by Truscon Steel Co.'s field organization, are again under the direction of Copeland Refrigeration Corp., this change having been made effective this month, according to an announcement made early this week by Dallas E. Winslow, president, Copeland Refrigeration Corp.

"By taking over the splendid work done by the Truscon organization, so that Copeland will have direct relationships with its distributors and dealers, we will be in a far better position to advance our plans for a country-wide expansion of Copeland sales outlets," said Mr. Winslow.

Distribution of Copeland household electric refrigerators will be through a distributor-dealer setup, it was announced. A good many of the outlets

(Concluded on Page 2, Column 3)

## Kelvinator Promotion Directed by Saylor

DETROIT—Several changes in positions and personnel in the advertising and sales promotion department of Kelvinator Corp. have been announced by Sam C. Mitchell, director of advertising and sales promotion.

W. E. Saylor is the new sales promotion manager for all products, and divisional supervisors have been appointed as follows: E. B. Barnes, domestic refrigerator and laundry equipment division; F. J. Worden, commercial and air-conditioning division; and W. H. Hanna, range and water heater division.

A. C. Scheffe now holds the post

(Concluded on Page 2, Column 3)

## York Bid Low on 4,800-Ton Conditioner Job in Capitol

WASHINGTON, D. C.—York Ice Machinery Corp. was low bidder on the 4,800-ton refrigerating and water-cooling equipment for the central station type air-conditioning system to be installed in the new Capitol Power Plant building here, according to S. E. Lauer, vice president and general sales manager of the company.

This will be the largest single contract for refrigerating and water-cooling equipment for air conditioning ever let. The amount of the York bid was \$603,775.

## Norris Will Handle S-W in Baltimore

BALTIMORE—R. W. Norris & Sons, former Leonard distributor in this area, has taken over distribution of Stewart-Warner electric refrigerators in Maryland, District of Columbia, and parts of Virginia. The company has had distribution of Stewart-Warner radios for several months.

Refrigeration activities of the company are under supervision of Wentworth Norris, general manager. Other members of the department are R. P. Deubel, Samuel Rochester, H. A. Allen, and S. Wagner.

## Report on Summer Cooling Standards Debated at Detroit ASHVE Meeting

By T. T. Quinn

DETROIT—Results of experiments on "Cooling Requirements for Summer Comfort Air Conditioning," prepared by the research laboratory of American Society of Heating & Ventilating Engineers, evoked a lively discussion at the December meeting of the society's Michigan chapter Monday night in the Wardell hotel.

The paper, prepared by F. C. Houghton, F. E. Giesecke, Cyril Tasker, and Carl Gutberlet of the research staff, was read at Monday night's meeting by S. S. Sanford, sales engineer of Detroit Edison Co. It will be presented in full at the forty-third

annual ASHVE meeting in St. Louis in January.

The study, a continuation of earlier researches made by the society in 1935, was planned so as to give additional information on the following points:

1. Desirable atmospheric conditions as regards temperature and humidity in still air for comfort in summer air conditioning, together with any variation in these requirements for different geographical regions having different weather conditions.

2. Allowable variations in the rela-

(Concluded on Page 2, Column 4)

Send in your reservation now for your copy of - - -



## Result of Price Law Ruling May Depend On Manufacturers

WASHINGTON, D. C.—First opinions issued this week from sources attempting to clear up some of the confusion among retailers resulting from the recent U. S. Supreme Court decision upholding the "fair trade" acts of California and Illinois whereby it is illegal for retailers in those states to sell trademarked goods at prices lower than that fixed by their manufacturer, seem to indicate that the question of whether or not there will be price-fixing rests on the decision of the manufacturers as to whether or not they will fix the resale prices of commodities bearing their trademarks, brands, and names.

Irving C. Fox of the National Retail Dry Goods Association says that the decision involves five main issues:

1. The ruling affects only the 11 states in which there exists a resale price maintenance law not violating the state constitutions.

2. The decision upholds the important Section 2 of the typical resale law. This section is to the effect that any retailer, even though not a party to an agreement, is bound by the resale price established by contract between the manufacturer of a trademarked item and any other retailer in the state.

3. The state laws of California and Illinois were held by the court to be "voluntary" in motive. In this connection, no manufacturer is obligated to fix a retail price, nor does the legislature fix or intend to fix such prices.

4. The ruling referred only to merchandise bearing the brand of the manufacturer.

5. The prohibition against price cutting by retailers of trademarked items is effective in only 11 states at the present time.

As to the clause whereby the court

(Concluded on Page 7, Column 3)

## American Blower Co. to Add to Dearborn Plant

DETROIT—An additional 57,000 sq. ft. of floor space will be added to the Dearborn, Mich., plant of American Blower Corp., manufacturer of heating, ventilating, and mechanical draft equipment, it was announced last week by Clark T. Morse, president of the company.

Contract for the construction of the addition, costing approximately \$150,000, was awarded to Stone & Webster Engineering Co., New York City.

## Leonard Builds Program for '37 On Master Dial

**500 Distributors Attend Annual Conclave to See New Models**

DETROIT—Leonard Refrigerator Co. will center its expanded sales and advertising program in 1937 around a convenience device called the "Master Dial," which combines and coordinates the functions of the temperature regulator and the temperature indicator, it was disclosed to 500 Leonard distributors and their representatives who met here for the company's annual convention last week.

The Master Dial has 12-position cold control, an "off" position, and a vacation setting. In the center of the Master Dial is placed a thermometer, which is at eye level as the door of the refrigerator is opened, and by means of which the temperature of the food compartment may be checked at any time.

Leonard cabinets have been restyled somewhat, but retain the graceful, cathedral-like lines of the 1936 models. They are taller and shallower.

Interior of the cabinet has been beautified through the use of color on the Master Dial, light shade, and front panels of the two food storage drawers on the bottom of the cabinet interior. Green is the color used.

Eleven models comprise the 1937 Leonard line. There are three series of models in the line: a lacquer series in 3, 4, 5, 6, and 7-cu. ft. sizes; a special series in 5, 6, and 7-cu. ft. sizes; and all-porcelain models in 5, 6, and 7-cu. ft. sizes.

A host of convenience features is included in the 1937 Leonard models. As explained by R. I. Petrie, general sales manager, Leonard hired the services of the Wehrle survey agency to conduct a survey of 28,000 housewives on what features in a refrigerator they most wanted, and Leonard attempted to equip its refrigerators in accordance with the survey findings.

The Len-A-Dor foot pedal door opener is again a feature. The rearranging shelf on the upper part of the door, a new feature last year, has been retained. The vegetable drawer has been fitted with an adjustable metal partition that keeps the drawer and its contents orderly.

To permit easy removal of articles in the rear of the refrigerator, a sliding shelf is provided.

The green-shaded interior electric light has dropped down to the center backwall of the cabinet. Rubber ice cube trays have been provided for all trays, and an ice cube tray release is available.

The evaporator has been enlarged, so that it will hold more ice trays, and produce more ice cubes. Faster freezing time is also claimed.

Larger models in the lacquer and porcelain series have a vegetable crisper that operates on a sliding runner, and which has a Bakelite non-chip serving tray cover.

New refund rates on dealer repossessions feature the new ReDisCo plan for financing Leonard retail sales as announced to Leonard distributors by J. V. Egan, vice president of the Kelvinator-Leonard finance organization, at the Thursday afternoon session of Leonard's 1937 convention here last week.

Mr. Egan told Leonard distributors that henceforth a refund of 25% in cash would be made on the purchase price of all boxes which dealers repossess. ReDisCo studies of retail

(Continued on Page 4, Column 1)

## DeWees Heads Advertising Of S-W Appliances

CHICAGO—Appointment of C. C. DeWees as advertising manager of the radio and refrigeration division of Stewart-Warner Corp. was announced last week by F. A. Hiter, vice president and general sales manager of the company.

Mr. DeWees previously had served as assistant advertising manager of the company, coming to Stewart-Warner on July 1, 1935, after several years of experience in advertising and sales promotion in the radio and refrigeration field.

F. R. Cross continues as general advertising manager of the parent company, a position he has held for several years.

## As the New Leonard Was Unveiled



L. C. Wiswell, Sr., Chicago distributor for Leonard Refrigerator Co., and his son, L. C. Wiswell, Jr., get their first look at one of the models in Leonard's 1937 line, introduced at the company's convention last week.



## Home Service Workers as Heralders of Planned Kitchens Is Theme of G-E Meeting

By Winifred Hughes

CLEVELAND—That the home service worker will be the planned kitchen and better homes salesman of the future was the theme reiterated at the Electricity For Better Living Conference last week at General Electric Institute, Nela Park.

Coming from all parts of the United States and from Canada, 156 persons attended the conference, where for three days a comprehensive picture of what home economists in the electrical industry are doing and what they will do in the future was unfolded in a program sponsored by the G-E appliance and merchandise department, under the chairmanship of Edwina Nolan, director of home service activities.

A special program on home lighting occupied the first day's meeting. Executives of the General Electric Co. presented the 1937 products and outlined merchandising, promotion, and advertising methods as the second division on the conference program.

Merchandising electrical appliances in Canada, selling to farm housewives, and the outline of a plan being used by Georgia Power Co. to introduce planned kitchen salesmanship into home service work were among the highlight topics of the home service program.

"Here in the United States you are a couple of steps ahead of us in merchandising," Miss Ruth Crawford, home service director of the Canadian General Electric Co., admitted in her talk on "How Home Service Women Can Sell Electric Refrigeration."

Running demonstration schools for church organizations and women's clubs, Miss Crawford said, is the chief activity used by her company to

bring people into the store. She explained that the company arranges to pay 15 cents per person for every member of such a group who attends a demonstration.

The refrigeration story told to these groups is woven around the economy angle, and is made graphic through the use of a huge blackboard on which a concrete dollar and cents interpretation of the savings story is outlined for prospects.

Speakers on the afternoon's program were: J. R. Potat, manager of the range division; Jack Bryan, of the dishwasher and disposal section, and G. D. Kobick, manager of the apartment house division.

Following Mr. Kobick's talk on unit kitchens and the movie with which he illustrated the methods for setting up packaged equipment, the conference guests were invited to inspect three display kitchens, one of which was that assembled in the movie.

Ted Ceisla, director of kitchen planning at Nela Park, opened the second day's program. He presented a miniature kitchen outfit which the home service workers could use in selling work, and also displayed a new piece of kitchen equipment—a centrally balanced table which has underneath cupboards large enough to hold several appliances, a shelf to hold a radio and books, and an adjustable side leaf, which when raised, turns the table into an average size breakfast nook table.

Victor Civkin, of the architectural service department, General Electric Home Bureau, New York, who spoke next, emphasized the fact that selling unit kitchens was only part of the

(Concluded on Page 17, Column 1)

## Distributor and Dealer Setup to Be Used on Copeland Household

(Concluded from Page 1, Column 3) that handled the line this year under Truscon's supervision will retain their franchises under the new setup. A force of factory field men will be added to the factory staff to develop distributor accounts, and to assist distributors in dealer contacts.

An extensive advertising program is contemplated, with national magazine advertising and local dealer cooperative advertising plans already started. Baldwin & Strachan, Inc., of Buffalo, has been engaged by Copeland as its advertising counsel.

Heading the new sales organization, Mr. Winslow announced, are James D. McLeod as general sales manager, and W. G. von Meyer as vice president and sales manager.

Mr. McLeod joins Copeland with a long record as a successful sales executive. He was for 12 years with the sales staff of the Chevrolet Motor Co. in the positions of special representative, regional sales promotion manager, city sales manager in the Detroit area, and zone sales manager. He also had experience in the manufacturing divisions of General Motors.

Mr. von Meyer, who has been associated with Copeland since 1933, is one of the real pioneers in the household electric refrigeration industry, his experience dating back 18 years. He was connected with the Nizer and Kelvinator Corp. for seven years.

In announcing the plan for an expanded program on the Copeland household refrigerator, Mr. Winslow declared that the factory has been "groomed" for an increased production program, and announced the appointment of John R. Replogle, veteran industry engineer, as works manager.

Complete announcement concerning the 1937 Copeland product will be made within the next two weeks, it was stated. It is known that there will be five models in the line (4, 5, 6, 7, and 9-cu. ft. sizes) and that all models will be equipped with the twin-cylinder unit.

The promotional campaign, incorporating national magazine advertising, will be put underway immediately under the direction of the newly appointed advertising counsel. The cooperative plan for local dealer advertising will encompass newspaper, radio and billboard media.

A feature of the local cooperative advertising program is that the manufacturer is planning to stand more than 50% of the cost. A 50-50 split on cost has been the usual custom in most similar campaigns in refrigeration merchandising practice.

## Air-Conditioning Sales Reported for October

(Concluded from Page 1, Column 2) \$1,225,310; fans—\$1,319,811; unit heaters—\$1,626,907.

In the air-conditioning group, October orders registered an increase of \$184,763 over those for September, when the total was \$1,040,657.

Self-contained systems showed a decline from their September mark of \$75,940, totaling but \$54,202, but systems not self-contained rose all the way to \$523,992 during the month, from a September total of \$359,941.

Industrial systems rose to \$199,360, compared with but \$34,177 during September. Human comfort systems of the central station type totaled \$235,328, against a September mark of \$341,696.

Air washer sales rose from \$36,217 during September to \$57,247 in October, and air filter sales from \$14,952 to \$23,745. Humidifier sales totaled \$125,078, compared with \$83,506 during September.

## Kelvinator Makes Additions To Advertising Staff

(Concluded from Page 1, Column 3) of operations manager, and J. T. Steinko is copy chief.

Mr. Saylor, who has been with Kelvinator's advertising and sales promotion department since 1932, has served as merchandising manager, assistant domestic advertising manager, assistant operations manager, and operations manager. He has been in electric refrigeration advertising and publicity work since 1926, and also has spent several years in newspaper work, having been a reporter, feature writer, and city editor.

Mr. Barnes, who came to Kelvinator after several years of experience in the merchandising and advertising field, succeeds Walter Jeffrey, who recently was appointed advertising and sales promotion manager for Leonard Refrigerator Co. Mr. Barnes was director of the home air-conditioning division of the Cleveland Electrical League for the last two years.

Mr. Worden and Mr. Hanna are both experienced in their respective fields.

## Keeping Up with the News of the Industry



President George Mason of Leonard Refrigerator Co. takes time-out during the Leonard convention banquet to look over the latest copy of Air Conditioning and Refrigeration News, while S. Rosenblum (left) of the Shapiro Sporting Goods Co., Newburg, N. Y., distributor, and B. B. Geyer (right) head of Geyer, Cornell & Newell, Inc., Leonard advertising counsel, await their turn.

## Detroit A.S.H.V.E. Discusses Summer Comfort Standards

(Concluded from Page 1, Column 4) tive humidity of the air with optimum conditions of effective temperature, and any variation in the time required for the disappearance of sensible perspiration with variations in the moisture content of the air.

3. Variation in the required effective temperature for comfort depending upon the age, sex, and general health conditions of the persons involved.

4. The effect of the amount of clothing worn, particularly the effects of coats worn by men, on the desired effective temperature.

5. The effect of air velocities, above those usually used in air conditioning, on the cooling requirements.

6. The characteristics and seriousness of the cold shock felt upon entering a cooled space in the summer, together with the duration of the shock and the subsequent physiological reactions or sensations up to the time when complete comfort is established.

7. The physiological reactions and sensations of a person leaving a cooled space and re-entering the hot outside, and the duration of these reactions.

Items 1 to 4 are covered rather extensively in the report, with some additional facts concerning the other three.

Experiments were carried on in three places: the Ontario Research Foundation, Toronto; A & M College of Texas, College Station, Tex.; and the ASHVE research laboratory, Pittsburgh. The Toronto study was made during July, the Texas study during July and August, and the Pittsburgh study during June, July, August, and September.

In each case, an inside room was used for the experiments. Tests of two general types were made: in one, the atmospheric conditions in the test room were made to vary slowly over a period of time over a predetermined course, traversing the comfort zone; the usual test practice was to bring the subject to equilibrium with a constant condition in the test room, after which conditions were varied slowly and the reactions of the subjects noted.

Subjects used in the tests ranged from 19 to 25 years of age, and were tested for normal health before being accepted.

From tests made in the three districts, a comfort zone of from a little below 68½° to 71° effective temperature in Toronto; of from 69½° to almost 74° in Pittsburgh; and of 71° to 74° in Texas was established. This would seem to dictate, the paper stated, an effective temperature of 70° or 71° F. for Toronto, and about 73° for Pittsburgh and Texas.

A study of the relation of comfort to relative humidity with constant effective temperature indicates, the paper stated, little or no measurable variation in the time required for perspiration to disappear and for comfort to be established in a relative humidity range from 20 to 90%. Recommendation for relative humidities of 80 or higher must be given

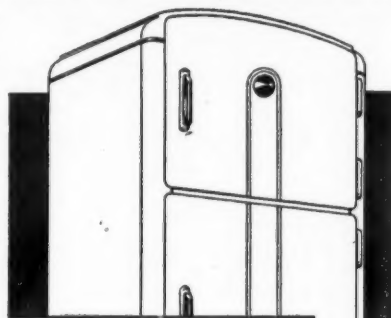
with caution, however, it was emphasized, because of the difficulties in supplying these higher humidities with the air-conditioning systems available.

Age made little difference in comfort. Subjects ranging in age from 20 to 65 years showed the same comfort requirements as the younger subjects. A slightly higher temperature was found desirable by men over 40. Women showed the same comfort cooling requirements and desires as men.

Clothing was found to have a material effect on desired temperature. Wearing of a light weight coat apparently decreases the temperature required for comfort by from 2 to 3°, the paper concluded.



Swing AWAY FROM REPAIR SERVICE!



### Keep ALL Your Profit With COOLERATOR

No costly service problems when you handle the Air-Conditioned Refrigerator! You pocket the entire profit on every Coolerator sale. And sales are easy:

• **LOW PRICES:** From \$39.75. Big family size only \$79.50.

• **EXCLUSIVE FEATURES:** Coolerator uses ice in a totally different way... is completely air-conditioned with washed, humidified, circulated cold air... no danger of mingling food odors... foods stay fresh, no covered dishes needed... ice cubes in only 5 minutes.

• **COMPLETE LINE:** From 2¼ cu. ft. capacity to huge 50 cu. ft. commercial model.

• **NATIONALLY ADVERTISED:** Now adopted by more than 300,000 homes.

A profitable new line for you... write, wire or telephone today for full facts:

The COOLERATOR CO., Duluth, Minn.

Swing OVER TO Coolerator The Air-Conditioned Refrigerator



## WOLVERINE COPPER TUBING

The famous Wolverine Solder Seal keeps the interior as clean as the day it was made. In addition, each coil is wrapped in heavy crepe paper to insure cleanliness and labeled to facilitate handling. Meets all requirements for anufacturer and for service work.

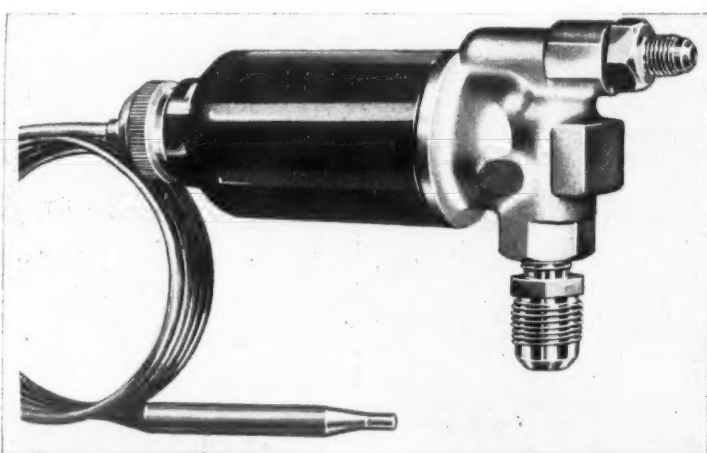
## WOLVERINE TUBE CO.

1411 CENTRAL AVENUE

DETROIT, MICHIGAN

## STANDARD REFRIGERATING APPLIANCES

Another...  
OUTSTANDING VALUE  
COMBINING MANY NEW  
and ADVANCED FEATURES



TYPE "B"

## THERMOSTATIC VALVES

These rugged, dependable valves assure a brand of performance which sets a new high mark for products of this nature. They are constructed of the finest materials available to the industry. A forged body, tough, non-porous and finely machined is only a part of the many new features embodied in these valves. Others include easily removable needles and seats, removable power elements (which have always been gas-charged) easily changed in the field. Adjustable and accurate to a fine degree. .093 orifice standard but .078, .125 and .156 available on order. ½" S.A.E. outlet standard with ¾" or ⅝" available on request. ¼" S.A.E. inlet.

Write for bulletins on the complete line of Blue Ribbon appliances

## AMERICAN INJECTOR COMPANY

RILEY ENGINEERING CORP. Associate

1481-14TH ST. • PHONES LAFAYETTE 0350-0552 • DETROIT, MICH.



# A MESSAGE TO FRIGIDAIRE DEALERS AND SALESMEN

A DEEP SENSE of appreciation prompts us to address this public message to the Frigidaire Selling Organization:

In 1936, you achieved the greatest sales success in the entire history of the refrigeration industry.

During the first six months, you sold more Frigidaires than during the entire year of 1935, or any other year.

And your rapid pace never slackened. Week after week, month after month, right through the year, you continued to pile up new selling records.

A few short months ago, we were proud that Frigidaire had sold one and one-quarter million more mechanical refrigerators than any other manufacturer. But now, because of your untiring efforts, Frigidaire can point with even greater pride to a margin of leadership of over one and one-half million refrigerators.

We helped you, of course. We gave you the Frigidaire with the Meter-Miser, a product conceived, designed and built with a single unwavering aim—to meet *all five* standards for refrigerator buying. We gave you carefully-prepared "Buy on Proof"

selling plans, specially geared to the marketing problems of all three major selling seasons. We gave you the backing of dynamic, sales-compelling advertising.

But to all these ingredients of success you added one that was most important of all . . . one that is the essence of a winning campaign: Your Own Resourceful and Aggressive Activity.

Together, we have fulfilled the promise "You can do better with Frigidaire in 1936."

We are working now to make 1937 a greater year for Frigidaire Selling Men. Soon you will have new and more salable products, *featuring a revolutionary improvement that will be the talk of the industry and instantly capture the imagination of the buying public*. Backing up these amazing products will be a new, forceful sales and advertising program, to help you harvest, once again, an even larger volume of sales and earnings with Frigidaire.

Together, we have fulfilled the promise "You can do better with Frigidaire in 1936."

The opportunity and the means are now at hand to fulfill another promise: "You will do *still better* with Frigidaire in 1937."

FRIGIDAIRE DIVISION

General Motors Sales Corporation

Dayton, Ohio



## Leonard Places Emphasis on Convenience Features and Offers New Finance Plan

(Continued from Page 1, Column 5) operations assure resale at a profit on this basis, he said.

To encourage sales efforts in the "off" season higher repossession refunds will be given on repossessed refrigerators originally sold between August and December, Mr. Egan stated. On repossessions sold in August and December, he said ReDisCo offers the dealer a refund of 30%, and on those sold during the months of September, October, and November a 33 1/4% refund will be allowed.

The new repossession refund rates, Mr. Egan declared, were the outcome of dissatisfaction among dealers who had been using the various non-recourse finance plans and were paying "protection money" to guard against losses on repossessed boxes.

Five out of every seven boxes repossessed, the ReDisCo executive claimed, are not covered under repossession refunds offered by most of the non-recourse plans now in operation. The collection of at least the first four monthly payments is the premium placed on most refunds, and this limitation usually causes a loss on repossessions, he stated.

A six-point limitation on qualifications to assure refund under the new plan was announced by Mr. Egan, formulated "to avoid strangling limitations." They are as follows:

(1) Dealers must offer ReDisCo, for discount, all their paper on Leonard products.

(2) Dealers must conform to the ReDisCo plan of operation.

(3) This plan is limited to sales for household use only. Leonards sold for us in commercial establishments like restaurants, wayside stands, etc., are not covered.

(4) No refund will be allowed where repossession has been caused by misrepresentation to the customer by the dealer or his salesman, or where guaranteed service is not rendered the purchaser.

(5) The plan is effective only on bona fide sales. No "30-day trial" installations or other tentative sales are allowed. Payment of the first four monthly installments within 30 days of due dates also is required.

(6) Dealers must sign statements to the effect that they have not advanced funds to the purchaser to cover any of the first four payments paid by the purchaser.

"Present methods of ReDisCo's operations have not been changed in the slightest under this new setup," Mr. Egan declared. "We believe that

it will help the dealer to make a profit, involve no obligation to the distributor and place no penalties on the dealer, and will leave the dealer to control the finance operations of his own business as much as possible."

### Advertising Campaign Outlined by Geyer

Full-page advertisements in four leading national magazines will be the main factor in the 1937 advertising campaign of the Leonard Refrigerator Co., according to the program outlined by B. B. Geyer, of Geyer, Cornell, and Newell, Inc., advertising agency which handles the Leonard account.

The *Saturday Evening Post*, *Collier's*, *Liberty*, and *True Story* are the four magazines selected to carry the company's story.

In addition, Mr. Geyer told the distributors that they would be aided by extensive newspaper advertising throughout the entire country, by increased billboard use, and by radio spot-announcements in hundreds of towns and cities.

According to Mr. Geyer, a survey of 904 families in various parts of the country showed that 834 of the homes regularly subscribed to the four publications listed to carry Leonard's advertising, and said that this was a good indication of the choice of the entire nation.

Stressing the importance of national advertising to the business increase of any major company, Mr. Geyer asserted that in the history of the refrigeration industry 250 different firms have been dissolved or disbanded, and one of the main reasons for these failures was lack of nationwide coverage.

### Promotion Plans Revealed by Mitchell

"The Master Dial is Leonard's outstanding feature this year," said S. C. Mitchell, director of advertising and sales promotion. "Leonard was a sensation in 1936, but it lacked a central theme or point on which to hang the sales story. The Master Dial furnishes us this year with the opportunity of creating advertising different in appearance, story, and treatment from any ever run before. The entire 1937 advertising campaign will be built around this Master Dial."

"Principal purpose of last year's advertising campaign was to let the public know that Leonard was in the

## Leonard Executives Get Tips from Distributors



(1) George W. Mason, president, and (2) Henry W. Burritt, vice president in charge of sales for Leonard Refrigerator Co., are very happy over the reception accorded the new Leonard line. (3) Bob Petrie, Leonard sales manager, puts his feet up and snaps his gulluses, glad of a chance to relax between hectic convention sessions.

electric refrigeration field. Ads were concentrated chiefly in the *Saturday Evening Post* augmented by double-page spreads in other leading periodicals."

First magazine advertisement for 1937 will appear in the *Saturday Evening Post* of Feb. 27. Printed in several colors, it will feature Leonard's Master Dial. Recalling the valuable features and economy of operation offered by the 1936 Leonard, this ad will point out the "plus value" to be found in the new model. The head of this advertisement will read, "Tune in' on the most advanced refrigerator ever built," and the subhead will contain this information: "Pay only 90 cents per week on the Leonard-ReDisCo plan."

"Billboard advertising," Mr. Mitchell stated, "will be carried out on a nation-wide scale, the brightly colored posters bearing the advice, 'For greater economy see Leonard's Master Dial.'"

"A much larger proportion of newspaper advertising will be used next year than was employed in the 1936

campaign," declared Mr. Mitchell. "This advertising will be designed to reach only local markets, and will appear over the signature of the dealer in that locality. Typical headings read: 'Better refrigeration—less cost—as result of the Master Dial'; 'Now at Blank's Appliance Store—Tune in on 1937's greatest refrigerator value.'"

### Mason Optimistic about Future of Business

George W. Mason, president of the Leonard Refrigeration Co., declared that whereas the refrigeration industry as a whole increased its business by 25% during 1936, Leonard increased its sales by almost 50% over 1935.

"A greater increase in 1937 over 1936 than was made in 1936 over 1935 is our goal," said Mr. Mason.

In summarizing the Leonard prospects for the coming year, Mr. Mason said:

"There will be probably 2,000,000 refrigerators sold in 1937. Over \$300,000,000 is to be spent on the purchase of these refrigerators. Leonard men will have what ought to be the first choice of the machines. Prompt delivery of all sold refrigerators is assured. All obstacles to easy shipment and delivery have been removed."

Mr. Mason pictured the immediate future of American business as one of increased prosperity and expansion. "I am enthusiastic about the months ahead for bigger and broader reasons than those which apply only to our own product or to the refrigeration business," he said. "I am glad that our business is located in the United States. Progress that has characterized this nation ever since its founding has overridden the obstacles of depression, and our country has resumed its upward climb."

"Reports on retail sales show that Christmas business this year will be better than in any year since 1929. Money is again in free circulation. The automobile industry is having a record-breaking season. The buying power of farms has been restored. Durable-goods industries are making rapid strides. Real estate values are being reestablished. Wages have increased faster than living costs."

"Because of the confusion of the political battle of the last few months, some men may be apprehensive as to what will become of us. I have no patience with the man who loosely talks about moving to a foreign country—with the man so short-sighted as to feel that opportunity in the United States no longer exists."

"There is something born and bred in the American that is too fundamental to be obliterated by war, or depression, or the arguments and

theories that grow out of an election. "It is a characteristic that in less than two centuries has made the United States the greatest country in the world. It has brought us a standard of living such as no other nation has ever enjoyed. And the fundamental of which I speak is the willingness and ability of our people to work together of their own volition for their common good; and that, gentlemen, is the definition, the history, and the hope of American business."

### Burritt Discusses Potential Markets

"This convention launches Leonard's 56th year in business," declared Leonard's Vice President Henry W. Burritt, introducing his discussion of the refrigeration market, the refrigeration industry, and the relation between Leonard Refrigeration Co. and Kelvinator Corp.

"Mechanical refrigeration has become almost a necessity in the average American home," he continued, "and the modern American housewife fully appreciates the benefits which refrigeration has introduced into homemaking activities."

"Today, 22,000,000 homes in this country are wired for electricity, but little more than 8,000,000 of these homes are equipped with electric refrigeration. The remaining 13,000,000 wired homes unequipped with mechanical refrigeration, combined with the return of general prosperity, indicate a splendid primary market for the refrigeration industry."

"The secondary or replacement market also furnishes an important

(Concluded on Page 7, Column 1)

Write for advertising rates and complete information - - -

THE  
RED  
BOOK

### Key Specifications of 1937 Leonard Models

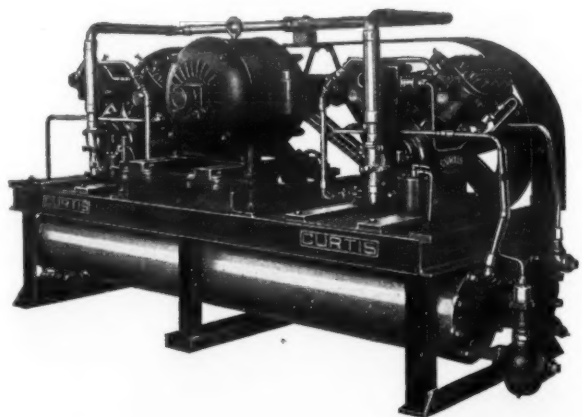
Model	Capacity (Cu. Ft.)	Shelf Area (Sq. Ft.)	No. of Trays	Ice Cubes	Lbs. of Ice	—Exterior Dimensions—		
						Height	Width	Depth
Porcelain Series								
P5-37	5.16	10.72	4	88	9	60%	29%	25%
P6-37	6.13	14.03	4	88	9	62%	32	25%
P7-37	7.19	15.49	6	132	13.5	65%	33 1/2	25%
Lacquer Series								
L3-37	3.16	7.45	2	32	4	48	24	25%
L4-37	4.15	9.6	2	40	4.5	51 1/4	24	25%
L5-37	5.16	10.72	4	88	9	60%	29%	25%
L6-37	6.13	14.03	4	88	9	62%	32	25%
L7-37	7.19	15.49	6	132	13.5	65%	33 1/2	25%

Why we say

"CONSULT YOUR LOCAL CURTIS REPRESENTATIVE"—

● In every current Curtis advertisement to users of Curtis refrigeration and air conditioning equipment you will find the phrase "Consult Your Local Curtis Representative."

For Curtis sells only through its appointed representatives, not



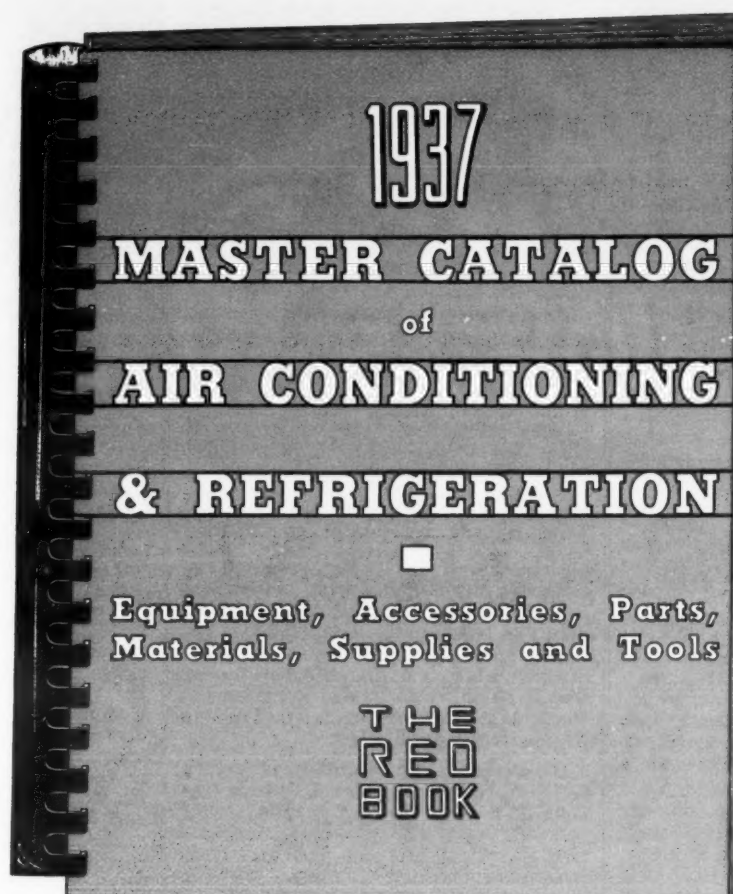
through any other outlet nor direct.

Such advertising is just one example of the way this company is working to increase its dealers' sales and profits. It will pay you to investigate the Curtis merchandising plan of dealer co-operation. Write today.

CURTIS

CURTIS REFRIGERATING MACHINE COMPANY  
Division of Curtis Manufacturing Company • 1912 Kienlen Avenue, Saint Louis, U. S. A.





# Covering the Entire Market

Air conditioning and refrigeration, as an industry, is an extremely active market.

During the first 10 months of 1936 more than two million household electric refrigerators have been sold—an all-time record. Commercial refrigeration sales have reached new peaks. Air conditioning is going forward. The industry is geared for big production in 1937.

An expanding active market, representing so many millions of dollars naturally attracts new capital, new personnel. During the past year, many new companies have been formed and are coming into the industry. Many old companies have organized new departments and become active in this market. New distributing organizations, new dealers, new service companies are springing up. Additional newcomers will no doubt enter the business.

Manufacturers of parts and materials and supplies seek to establish contacts with manufacturers of com-

plete equipment as well as with sales outlets reaching the service and replacement fields.

Installation, service and replacement is now an important and rapidly expanding market in itself.

All of the factors in the industry, the new as well as the old, seek information in regard to new sources of supply, new developments, new sales outlets.

In response to this situation, the Master Catalog (The Red Book) will be of service to the entire industry. Fifty thousand copies will blanket the entire market—manufacturers, jobbers, distributors, dealers, contractors, installation and service companies, and large buyers.

**50,000  
COPIES**

No similar service has ever before been offered to the air-conditioning and refrigeration industry. This catalog will be kept on file for frequent reference.

To advertisers desiring coverage of the entire industry, the Master Catalog offers a rare opportunity for effective low-cost advertising. It offers every manufacturer a medium through which to place his product information, specifications, catalog material, and sales message in the hands of active buyers.

The page size is 8½ x 11 inches. Attractive, durable cover with spiral wire or plastic binding. The rate per page is \$500. Rates for inserts, when furnished by the advertiser:

2 pages, \$450 per page .....	\$ 900
4 pages, \$400 per page .....	\$1,600
8 pages, \$350 per page .....	\$2,800
16 pages, \$300 per page .....	\$4,800

Publication date March 1, closing date February 1.

Write for complete information.

## Business News Publishing Co.

Publishers of Air Conditioning and Refrigeration News

5229 Cass Ave., Detroit, Mich.

Advertising Representative: John B. Gallagher Co., Inc.—New York and Chicago



# Around the World

With George F. Taubeneck

This instalment is the 51st in the editor's "World Series" based on his seven month's trip around the world this year.

This week he finishes his description of storied Venice, makes some general observations on Italian life, and then journeys northward to Vienna, Austria.

Countries described by the editor so far in this series include: United States, Hawaii, Samoa, Fiji Islands, New Zealand, Australia, Papua, New Guinea, Java, Straits Settlements, Burma, India, Arabia, Egypt, Palestine, Spain, France, Malta, Monte Carlo, and Italy.

## Honeymoon Addenda

While we're on the subject of Venice—the Ideal Honeymoon Site, we shouldn't overlook Naples, Florence, Rome, and the Italian Riviera as adjuncts to the sophisticated honeymoon trip.

Publicity agents for most resorts generally claim that after you have been to Paradisica, you can never be happy until you return. And once in a while it's all wool, instead of all bull.

Probably it is most true when said of the Italian Riviera district (rightfully speaking, we should say the Ligurian Riviera and its continuation, the Tuscan Riviera).

Here foregather, from the ends of the earth, income tax hounded tycoons, luxury loving ladies, and the not-so-idle rich who have enough money laid aside to accomplish a magic carpet act when winter, nosey neighbors, or some unpleasant mix-up occurs to make home undesirable or unhealthy.

So tourists in flocks and droves go to the Italian Riviera. And if you ever get the chance, don't miss it. Ideally situated from a geographic standpoint, this enchanted district has all the advantages of a grand climate, proximity to the mountains and the sea, scenery that is as beautiful as Max Eastman's prose, and sunshine that's never gingerly.

In the winter you'll find the climate mild, and the air bracing; and the summer is cooled by wafts of the type of gentle sea breezes which air conditioning tries to approximate.

If its flora you are interested in, you'll find it (or her, to be cute) here. Vines run in careless abandon, olives and citrus fruits drip from the hill-sides, fields are filled with so many flowers that you think you've never seen flowers before—all of this you find at the Riviera. And the girls are as lovely as the flowers.

Most popular as a health resort is San Remo, which is about 80 miles from Genoa. Holiday visitors come hither, where they may choose between the modern sector, which is close to the sea, or the older part, which is sprawled on the spur of the hills. This resort is popularized most from October to May, but it has its share of summer visitors, especially among people who look for excellent bathing.

You not only get scenery, sand beaches, and other natural gifts at San Remo and similar Riviera spots, you find also excellent facilities for sports—golf, horseback riding, automobile races, regattas—and the inevitable gambling casino, concert halls, movies, and theaters where operatic performances are put on at various seasons.

A touch of the romantic tinges Nervi, where the sand-covered beach is washed by waters more purple than blue. Here are several famous old villas done in the Romance manner, and open to those of the public who have the necessary lira for entrance fees.

One of the chief spring and winter resorts of the Riviera on its eastern side, is Santa Margherita Ligure,

which is but 17 miles from Genoa. It is a paradise for people who like to walk. Most beautiful of its walkways are those which traverse Paraggi, a small bathing resort close by, and Portofino, which ranks at the top in any list of most picturesque Riviera spots.

Rapallo, Zoagli, Chiavari, and Cavi di Lavanga are other resorts in eastern Italy. Over on the west coast, near the French Riviera, Ventimiglia, Bordighera, Ospedaletti, lure guests from all over the world to bask in the sunshine and store up a flock of nice memories.

Wherever you go, whether you are interested in being at a smart resort or one that's just rural, delightful, and lazy, you'll find beaches that stretch for two and three miles of sand, pine trees that make each breath of air exhilarating, skies that make even the most prosaic yearn to be able to paint or to write—such is the Riviera.

Most of the resorts have good accommodations for visitors, and they can be reached easily by fast train, by car, or in some instances, by plane.

One other of the Riviera's boasts we can't pass by without mentioning—Spezia, which is one of Italy's most important naval bases, being situated at the end of the bay of Spezia. The town itself is built along the edge of the sea, with its fine coastal plane interrupted by billowing hills.

Close to the Bay of Spezia, which is considered the most beautiful Italian water front after Naples, are the small towns of Portovenere, San Terenzo, and Lerici, which have enjoyed a certain amount of fame because of their associations with Shelley and Byron.

## Resorts and Sports

Few Italians who have time and means to take part in the sports which make leisure memorable in Italy, will let you come home without visting some of their mountains and seeing some of their resorts, even though you be there at a season when winter sports are not in vogue.

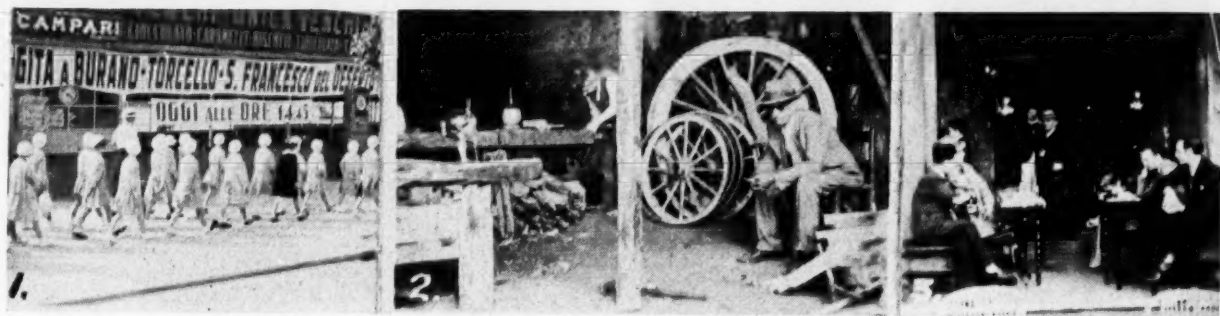
First of all, Italy has a climate which rivals California and New South Wales as a land of sunshine. Called "the land of eternal spring," Italy has a number of suntan resorts which are widely known all over the world. But the winter sports are good, too.

Probably the best thing about the winter resorts, aside from the beautiful scenery, and the exhilarating I'm-ten-feet-tall-feeling which the bracing cold air and plentiful snow can give you, is that resorting can be done with most of the modern conveniences attendant.

Hotels are well equipped, transportation has been speeded so that you may reach the more important resorts in a few hours, and comradeship and love of sports spills over from warm Italian hearts.

Meals at the resorts are reputedly good. And most of the mountainous places used for ski-ing, most popular of the winter sports, have slides roped off for beginners, and competent guides and instructors to help them along.

## Blacksmiths Flourish as Children Parade for New Italy



1. Italian schoolchildren on the march during a recess. 2. Blacksmiths still labor at their ancient trade in Italy. 3. Italian food is an adventure, even if it generally turns out to be spaghetti. Here is a typical sidewalk cafe.

In Western Italy near Piedmont, Mont Blanc, Monte Rosa, and the nearby Matterhorn, are the Alpine resorts easily accessible to the town-living Italians. Then, running down throughout Italy, stretch the Apennines, whose valleys and slopes are dotted with resorts and more resorts.

Skiers who feel wing sure choose Courmayeur, which foots the Mont Blanc group of mountains, as a good place to soar and skim through the snow. Behind them are glacier-covered mountain slopes. Valtournanche, which people with Matterhorn aspirations take in stride, is famous in Alpine climbing history.

Clavieres is a Piedmontese resort, 5,775 ft. above sea level, where the sloping, snow-covered hills offer jumping runs for ski-ing, places for bob sleighing and for skating, from November through to April.

Some of the ski-ing spots have been fitted up with aerial wire-ways which carry skiers up to the highest slopes. Which is a particularly good idea. You come down awful fast on skis, but it's a long way back up.

## Whatever You Call It, It's Still Spaghetti

We gave France the diamond garlic squeezer for being the nation of magnificent foods. But we can't pass by Italy without awarding at least an honorable mention. First thought in connection with Italian food, of course, is that it is the home of "pasta" or macaroni products. So, when in Italy, we had spaghetti that was spaghetti. In fact, most of the long words on the menu turned out to be spaghetti.

Over counters, just as we buy candy bars, Italians procure and munch "agnolotti," little things that look like pastries (because of their "pasta" outside) but aren't. Inside the pastry covering, meat and vegetables, like four and twenty blackbirds, startle the American who expects to find jam.

Another surprise is "fondue"—a cream sauce made by melting cheese and butter over a slow fire, and served with slices of truffles. For vegetables you are sure to get Chiare cardoons dipped in a mixture composed of butter, oil, anchovy sauce, and pounded garlic.

If you are invited out to dinner in Lombardy, you'll find an entirely different food setup. Their heavy, delicious foods are at once gastronomically elevating and digestively depressing.

One of the things you are served is a soup of tripe; fortunately it doesn't taste like it sounds. Here fish gets national homage, and trout, perch, and other sea-food products are served in palatable style, with plenty of tart sauces.

Sardines aren't just common little silver fish to be packed inviolate in cans. Instead they are stuffed with breadcrumbs, sausage, pine kernels and raisins. In addition to stuffed sardines, a common luncheon might include swordfish or stockfish, seasoned with a sauce of oil, salt, pepper, and wild marjoram.

Fruits, of course, are an integral part of the national menu. They abound on the verdant Italian hill-sides, and are cheap. (Recall how many Italian fruit vendors you have

seen in America?) Grapes of a sweet tasting, syrupy immensity, oranges, mandarines, Japanese medlars, bary bary figs, all may be bought in at the end of a meal that already has had enough courses to give you that wheezy feeling.

No meal is complete without figs and wine, the first overly sweet, and the second unsweetened but tangy.

Meats are cooked and served tangy, too. I tried beefsteak "Alla Fiorentina,"—roast pork flavored with a pinch of aromatic herbs.

Homemade "pasta" colored with egg, and smelling faintly of flour, and made in long strips called "fettuccine," is the variety of spaghetti you'll eat in Rome. Over it will be Parmesan cheese and butter, meat gravy, tomato sauce, mussels, egg plant; or you may find a sauce of anchovies, braised broccoli, raisins, pine kernels and onion.

And Italy's wines! Dark-eyed little children learn as early as they do their a b c's what types of wines to serve before, after, and during meals. Wines also differ with localities, so that in one village you may be served an entirely different set of wines from those offered in another.

Famed the world over are such export wines as Capri and Chianti, while native Italians pledge fidelity to red Bardolino, Torcolato, Maraschine di Zara (served dewily cold from a straw covered bottle), Falerno, Lacrima Christi, and Gragnano, (vowed to be liquid velvet). Wines served with coffee include Villacidro, Mattino, Crema di Timo, and Limbara.

Being a country boy still, this writer is no connoisseur of wines, and can tell you nothing about the best zest of certain wines, nor what you should drink at certain moments. We simply took what came with the meals. Personally we claim kinship with those Georgia Tech engineers in the famous song: we like our whiskey—clear.

## Fancy Chemises

To think of Italy being the home of great music, awesome scenery, masterpieces of painting and sculpture, and then suddenly to be thrown into the midst of its cities, seeing its people and feeling the pulse of its militant life, is to find yourself just a little confused. Italy did produce great music and art once—which it still has, along with the scenery.

But Italy's people today are throwing their enthusiastic efforts into living, into improving their cities, into building their country into a mighty dictatorial state. They have little time for creative art. But with all this trend toward modernity, sobriety, and self-sufficiency, much of the color of ancient Italy still clings.

Take for instance, the costumes the people wear. In many of the rural sections, and all of the larger cities, the practical demands of modern life have forced the people to adopt more prosaic garments. Yet in some of the villages may be glimpsed the brightly colored shawls, richly embroidered skirts and blouses which Italian women have worn for centuries.

These colorful costumes are always unmothballed at the village festivals. Festivals and ancient traditional celebrations have not been discarded

with the years. Among the more prominent of these is the Palio of Siena, a ceremonialized horse race staged and enjoyed by the Italians today with even more verve than when it was first instituted; the "Ceri" candles, a feast celebrated at Gubbio; the "Scoppio del Carro" (the firing of the cart) which, although it dates back several centuries, is still an annual event at Florence.

Homewoven linen, ornamented with needle lace, makes up the Piedmont chemise (honest, that's what they call women's blouses in Italy). This is worn with a woolen or cotton skirt whose flaring hem is generously banded with Christmas-y red and green.

A bodice of black cloth, open to show a small yoke be-decked with ribbons, braid, or lace, plus an embroidered apron, complete the well-dressed Piedmont madam's dress up attire.

Tuscan women deck themselves in harmoniously assembled outfits. The Paris powers which decree what the American woman wears, often look to this Italian province for ideas. A recent Tuscan adaptation: those little pancake hats with flowers popping up unexpectedly on the crowns.

Although the costumes may vary with different sections, the clothes have a few general characteristics in common. Bright-colored skirts, aprons, kerchiefs, and tight laced tops are worn by the typical soft spoken dark-eyed Italian village belle, no matter whether she lives in the heel, the toe, or the top of this geographic boot.

Sorrento in the Campania is the section where the men's festive clothing outshines even the most garish costumes seen at one of Elsa Maxwell's fancy dress parties. The men wear short breeches of green satin, held up by a colored linen waist band. Gold braids and fringes topping off rich satins are worn by the girls. In the prevailing bright sunlight, the unforgotten visitor gets an eye-searing.

## Music in the Air

Notwithstanding the emphasis of the New Italy on the full baby carriage, the Fascist salute, sewage disposal, and mass production, Italy is still a haven for the best in symphonic, operatic, and classical musical performances.

With a fervor equal to that of a California Rotary Club, patriotic Italians have built up a tradition surrounding their music, just as they have built shrines to house it. To exploit their natural musical resources is merely good business. Imposing and architecturally impressive operatic houses and theaters grace all leading Italian cities; and the greatest of available talent performs regularly in these halls. The operatic season at La Scala in Milan is perhaps the world's finest.

Consequently, not only are Italy's opera houses and theaters a mecca for music-loving tourists and students, but the distinction of playing before such elite and discerning audiences is an honor which has become much sought after the world over by ambitious musicians and singers.

Most famous of the theaters, Milan's "La Scala," is one of Italy's largest, (Concluded on Page 8, Column 1)

## Costumes Reminiscent of Home at This French-Italian Seaside Resort



These four pictures which, like all the photographs published in connection with the "Around the World" series, were taken by Editor George F. Taubeneck during his seven months' world tour; they're typical scenes along the Riviera—that international playground which skirts the French and Italian shores of the Mediterranean.



## Burritt Emphasizes Replacement Market At Leonard Conclave

(Concluded from Page 4, Column 5) outlet for the industry's products, as from 400,000 to 500,000 refrigerators will be replaced in 1937. The replacement market, in fact, will constitute between 20 and 25% of all refrigerator sales next year," Mr. Burritt contended.

"Trade practices of the refrigeration industry," he continued, "are surprisingly good, and for that reason it is a good industry to be in. Malicious and unethical practices so prevalent in many other industries have entered only slightly into the refrigeration field."

In speaking of Leonard's parent company, Mr. Burritt said:

"Kelvinator Corp. has risen steadily since its founding, until now it is the second largest refrigeration organization in the nation. Leonard derives innumerable advantages from its association with such a concern, for without this connection the facilities, finance, and executive ability which have been largely responsible for Leonard's progress, could not be available."

Mr. Burritt also clarified the relationship between Kelvinator Corp. and Leonard Refrigerator Co.

"Leonard is a division of the Kelvinator organization," he said, "but the Leonard refrigerator is definitely not a 'second line.'"

### Leonard Will Cultivate Dept. Stores, Berkeley States

Leonard will direct much of its efforts in 1937 towards cultivating retail department stores throughout the country as handlers of Leonard products, declared E. R. Berkeley, manager of the merchandising division of Leonard Refrigerator Co.

During 1936, he stated, 25% of the refrigeration industry's total business was done by department stores, and of this amount 60% was done by 4,204 of the larger department stores.

To create more business during the early and usually slack part of the season, a contest plan in which Leonard refrigerators are offered as prizes has been made part of the department store sales campaign, Mr. Berkeley revealed. Another attraction for prospects, he believes, will be the economy-operation display in every Leonard showroom. This display is designed to emphasize the low cost of operation in a "dollar and cents" form and not in "kilowatt hours," the latter being, Mr. Berkeley said, too vague to most people to be effective.

### Jeffrey Presents Display Promotion Materials

Presentation of window and inside floor display promotion centered around the "Master Dial" feature of the 1937 Leonard line of household refrigerators was made by Walter Jeffrey, Leonard's new director of advertising and sales promotion, at the Thursday afternoon session of the convention.

"Controlled food preservation," said Mr. Jeffrey, "is the keynote of the 1937 Leonard line, and we have given you promotion material to make the most of it in your selling during the new year. When you get a prospect in front of a Leonard, tell a dramatic sales story, but let this display work for you too."

Special "silent selling" features have been incorporated into both outside and inside promotion offered to the distributors by Mr. Jeffrey, chiefly showing the benefits of controlled food preservation and economies of operation offered by the Master Dial. These have been incorporated with smaller card displays dealing with other features of the Leonard household line.

An outside window display demonstrated by Mr. Jeffrey, further use and effect of which were shown in a skit, featured a large, electrically-lighted Master Dial suspended over a Leonard 5-cu. ft. model, with promotion matter emphasizing the new feature's economical operation and assurance of proper food temperatures. Smaller cards below the main display described other selling points of the box.

A selling floor display through the medium of illuminated promotional cards, pointed out Master Dial features. These cards were arranged between floor units of several sizes, the entire display using a "straight line" effect so that the customer can be conducted from card to model and vice versa with the minimum of walking.

Principal feature of this inside display was a set of telechron clocks arranged above one of the smaller models in the line. One clock records the number of days the unit has been in operation. The other has a special dial which records current used in dollars and cents. Contrast between the two is the main selling point to be emphasized by the salesman in demonstrating economy features.

## Celebrities Attend Opening of 'New American' Home

(Concluded from Page 1, Column 2) live comfortably and securely in full enjoyment of the fruits of his progress."

While the ceremony was in progress, Mr. Ford received the following telegram from Federal Housing Administrator Stewart McDonald:

"We are in thorough accord with the belief that every American citizen should be given an opportunity to own his own home; that it should embody the comforts and conveniences that science and industry have made available; that it should be reasonably priced and substantially built."

Numerous G-E officials, besides Mr. Snyder, were present, including: J. F. Quinlan, manager of the New American Home program; S. C. Caswell, manager of General Electric Supply Corp.; W. D. Cameron, G-E's Detroit manager; A. M. Sweeney, sales manager; Art L. Scaife, advertising and sales promotion manager; Carl E. Robbins; Floyd Slator, district sales manager; and Edwina Nolan, manager of the home service division.

## Opinions on Supreme Court Price Law Ruling Indicate Problem Is Up to Manufacturer

(Concluded from Page 1, Column 4)

opines that the retailer may remove all trade-marks, brands, and names from an article and then sell at his own price, Mr. Fox declared that the court undoubtedly meant that all identification, or probably all possibility of identification, must be completely removed.

It is Mr. Fox' view that the problem has now become one for the manufacturer to settle. It is up to him whether or not he fixes the resale price for his branded merchandise.

"If he elects to do so and actually contracts with any retailers as to maintain a retail price," said Mr. Fox, "then all other retailers in the state where such resale price maintenance law exists are bound thereby. The price so fixed is binding upon the sales of any retailer in that state who has received actual or probably even constructive notice of the price so fixed. The expression 'constructive notice' is used because a retailer not a party to the contract is prohibited from 'knowingly' selling at a lower price, and constructive knowledge, if

provable, will bind him just as though he had actual notice."

According to *The United States News*, the gist of the Supreme Court's ruling is that a trademark represents good will and "any good will is property in a very real sense, injury to which, like injury to any other species of property, is a proper subject for legislation"; that states may enact legislation protecting the trademark owner in his right to set the price of marked goods on the ground that the sale of such goods at less than the fixed price constitutes "unfair competition"; and that price cutting by dealers has been shown to be injurious not only to the good will and business of the producer but to the public as well.

Government officials, says the *United States News*, expects four practical results to flow from the decision, namely:

1. State legislatures meeting in January will be strongly influenced to enact legislation similar to the laws of California and Illinois enforcing the right of manufacturers to fix

prices of trademarked goods in intrastate trade.

2. Congress will be even more strongly influenced to enact the Tydings bill extending the same principle to goods in interstate commerce.

3. There will be a spreading tendency within industry to brand all kinds of goods and fix prices of goods in those states possessing legislation of the type now legally approved. This may add impetus to what is becoming a general tendency in business to increase prices—a tendency that is viewed by government economists as highly dangerous.

4. Conflicting legislation is going to make real enforcement of the country's anti-trust laws virtually impossible, since the aim of those laws is to try to prevent the sort of price-fixing that is becoming legal.

It is pointed out that there is nothing to prevent a manufacturer of branded goods from allowing his products to be sold at any price the retailer wants to charge. Likewise, there is nothing to prevent the entry into the field of privately branded goods, designed to compete with well-known trademarks.

It is also pointed out that there will be an impetus to advertising as a result of the laws as manufacturers seek to educate the public in the value of a broader line of branded goods.

# THE MOST IMPORTANT ANNOUNCEMENT IN COPELAND HISTORY

*A Statement by Dallas E. Winslow, President*

COPELAND is one of the oldest and most highly respected names in the refrigeration industry.

In 1937 we shall embark upon a program whose purpose is to provide refrigeration dealers with a product which, because of its beauty and excellence, is 90 per cent sold when it leaves the factory, and likewise to provide practical sales and advertising support which will make Copeland the easiest-to-sell and most profitable refrigerator line in the industry.

These plans have been in development for many months. We have strengthened and will continue to strengthen our force of experienced field men, whose primary activity will be to assist our dealers in multiplying their profits. We have groomed the factory for increased production. We have placed at the command of our engineers, our inspection forces, our manufacturing experts, the very finest and most modern tools, machines and equipment. We have engaged national advertising counsel to carry out our plans for a far more vigorous and more dominating advertising program.

We are adding new popular-sized and popular-priced refrigerators to our line, all equipped with the improved Copeland twin refrigeration unit, so as to give our dealers a complete line.

In the commercial field, in which Copeland has won its greatest laurels, we shall promote equally forward-looking plans for expansion.

To undertake this entire program, we have organized our own factory-controlled sales force, taking over as of December 1, the sales work accomplished by the Truscon Steel Company for Copeland in 1936—a year in which marked progress was made.

In a word, we propose to make Copeland one of the leaders in the industry and we are backing up this purpose with men, management, product and strong financial resources.

We invite dealers everywhere to join with us in the opportunity which awaits us—and it is our firm conviction that it is the greatest opportunity in our history. We welcome inquiries about our program. Write us today.

**COPELAND**  
REFRIGERATION CORPORATION, DETROIT, MICH.



DALLAS E. WINSLOW



PIONEER  
MANUFACTURERS OF  
REFRIGERATION



## Showrooms for American Refrigeration Products in Vienna



1. Modernistic showroom of Hans Finsterle, Crosley distributor in Vienna. 2. Mr. Finsterle himself, with A. Warchalowski, Austrian Frigidaire distributor. 3. A Viennese woman stops to look at the Shelvador display. 4. His Master's Voice showroom in Vienna. Norge refrigerators are sold under that inappropriate trade name in Austria by the HMV branch in Vienna.

## Around the World

With George F. Taubeneck

(Concluded from Page 6, Column 5)  
second in capacity only to the San Carlo at Naples. Built in 1778, it has long been considered the high tribunal of the art of music.

Here many famous "first performances" of the world's greatest operas have been put on, among which were Othello in 1887, and Falstaff in 1893. Arturo Toscanini is one of the famous conductors of the "Scala." A debut for a singer here is an Open Sesame to any other opera house in the world.

Rome also has its famous operatic houses, greatest of which is the Teatro dell'Opera, or the Royal Opera Theater, elegant in its decorations and appointments, sound in technical organization, and thorough in its repertoire.

Performances are given not only for those of the higher social strata, but also for the poorer classes. Popular priced performances are given throughout the season, which lasts from December till April.

In practically every large Italian city, and in many of its smaller ones, you will find people thronging to the music houses—just as we Americans flock to the movies—to hear operas, classical concerts, choral presentations.

Most of the great musical artists of today have spent much of their time studying in Italy. Its centers are crowded with great teachers, great schools, promising talent, and magnificent houses for putting its music before a people who seem never to have enough of it.

Countless organizations and schools flourish in Milan. Probably one of the most famous is the "Accademia di Santa Cecilia," recognized as one of the chief musical institutions of the world. Owning its own house, seating 3,000 spectators, this organization plays to capacity throughout its season. There are 100 members in its orchestra, and 300 voices in its choir; and it's all on an amateur basis.

Footnote: One day in Milan I crossed the street to see why a crowd was gathered in front of the doorway of a shop. Know what? They were listening raptly to a series of American jazz records, and were particularly appreciative of numbers by those indigenous indigo inditers, "Fats" Waller and Louis Armstrong.

Verdi may whirl in his grave at the thought, but American music, like American movies, is conquering the world.

### Presenting Mine Hosts

When I stepped off the train in Vienna, two prominent and hospitable members of the city's refrigeration fraternity, A. VIKTOR WARCHALOWSKI and HANS FINSTERLE, former business partners and now friendly competitors (they sell Frigidaire and Crosley, respectively) were on the station platform to meet me.

Under their friendly guidance, I went on a tour of Vienna's many historical and beautiful spots. They

spared no efforts in seeing that I had a glimpse of everything in the city that was worthwhile.

Later we were met by ALFRED REICHSFELD of the Frigomat organization in Vienna, and the four of us had a most enjoyable luncheon together.

My stay in Vienna was all too short, and the regret I felt on having to leave the city so soon is largely attributable to the courtesy and kindness shown me by these three men.

### Warchalowski Claims Majority of Sales

Warchalowski, Reckzugel & Co. is Frigidaire distributor in Vienna—has been, since 1926—and is credited with selling fully 50% of the Austrian total annually. Sales by the company up to this summer were about 4,000 units, more than the rest of the companies in the country combined.

The company is also distributor for Toledo Scales, and at the time I was there was the only firm in the country handling Freon.

Severe import restrictions held the company's business up considerably from August, 1931, throughout 1932, according to VIKTOR WARCHALOWSKI, head of the firm handling sales, but things began to pick up along in 1934 and have been going right along ever since.

Distribution is handled by the company through its own branch offices, including service organizations, in four cities. There are only two independent dealers on its list.

Preponderant part of Warchalowski's business is done in the commercial field—the average in this end running well toward 60% of the total volume. Most of the business, both domestic and commercial, is on a time payment basis. About 80% of domestic sales are handled in this fashion; about 65% of the company's commercial business is done on time.

Most of the commercial business done by the company is in the butcher business and among food-serving establishments. Display case business is just now getting started in Austria, Mr. Warchalowski said, and from current indications the field will be a profitable one. All cases are made locally in the many Viennese carpenter shops.

There is little call for a great deal of mechanical equipment for use in air conditioning. Tap water with a temperature of 50° F. is obtainable, and most of the air conditioning being done in the city uses water as the cooling medium.

The Warchalowski company buys from Frigidaire complete any equipment under ½ hp. In larger sizes, the company buys from Frigidaire the compressor block, switches, water valves, and some condensers. At one time, Mr. Warchalowski told us, the company manufactured all its under-structures, but now it makes only the

heavier frames, buying the lighter ones from Frigidaire.

Duties on refrigeration equipment brought into Austria up the selling costs so that retail prices are pretty stiff, Mr. Warchalowski said. The duty on compressors is 45 gold krone (1.8 shillings) for each 200 lbs.; on coils, from 80 to 125 gold krone for every 200 lbs.; on household cabinets, 75 gold krone per 200 lbs. Special rates apply to motors, insulation, rubber gaskets, and trays.

Average duty is about 25% on the value of the equipment. In addition, an import tax of from 11 to 14% is levied on the value of the invoice.

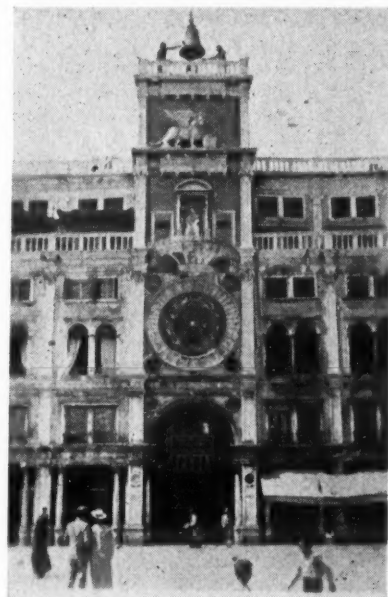
A 4-cu. ft. refrigerator, the most popular size in the country today, will have to retail for about 1,360 shillings, or approximately \$210, Mr. Warchalowski told us.

Most of his competition in the Vienna market, Mr. Warchalowski said, comes from Electrolux, with Crosley a close second.

### Municipal Utilities Promote Sales

Sales of electric refrigerators are financed in Vienna by the city-owned Vienna Power Co., which will put the refrigerator on the customer's monthly power bill, besides permitting special

### Beauty - - of Detail



Interesting example of Italian penchant for architectural ornamentation. Italian metropolitan buildings seldom show beauty of line or conception; it's the details on which are lavished artistic embellishment.

rates for power used in running electric refrigerators.

On a 3-cu. ft. box, for example, the customer pays only 7 shillings a month during the six warm months of the year; on a 4-cu. ft. unit, the rate is about 9 shillings a month. In the six winter months, however, the rate is sliced to about half of the summer terms.

About 80% of the Electrolux units sold are merchandised for the gas they will consume, in Mr. Warchalowski's opinion.

Sales are handled through the Vienna Gas Co., another city-owned organization. Rates on a unit of 1-cu. ft. capacity are about 9 shillings a month.

Most of the sales of electric refrigerators in Vienna are made right in the showroom—and by the manager, if possible. Vienna people like to come to the head office, Mr. Warchalowski said. They feel they can buy there cheaper.

The company has a number of salesmen working in the field, ferreting out prospects, but seldom bringing them in. Salesmen are paid a small salary (about 150 shillings) and commission. According to law, if you want a man to do something for you, you have to engage him. So the commission plan alone won't work in Austria, Mr. Warchalowski says. Unless you pay the man a salary, you have absolutely no control over his actions. He can report for work when he wishes, and leave any time in the day.

Refrigeration saturation is low in the country, and ice companies, of which there are several large ones in the country, are well organized and quite active. Both wet and dry ice is used extensively—the former selling for 70 groschen per 50 lbs., and the latter at the same price for 2 lbs.

Mr. Warchalowski has made a real study of the possibilities of direct mail advertising as a business aid; and he can't see that it's very effective, in his case. He sends out mailings of 5,000 cards, with a return card for prospects to use in answering. Returns average about 25 cards per mailing, and Mr. Warchalowski hasn't been able to trace a single sale to any of the campaigns.

Most of his business is done with the aid of "spotter" dealers. Two scales of commissions are used: 25%, if the dealer makes the sale himself, and 10%, if the dealer turns in the name of a prospect who buys later.

Everybody wants a discount, the Frigidaire distributor complains. Often these discounts will run as high as 30%—which makes the company rather hard put to show a profit, unless the price of the equipment is jacked up to meet anticipated cuts.

### Finsterle Started the Show

Crosley distributor in Vienna is HANS FINSTERLE, generally credited with being the man who really started refrigeration going in Austria.

Mr. Finsterle's start in the refrigeration field was made with Frigidaire in 1926. He switched to the Crosley line in 1933, and has been handling it ever since. He was also once Buick distributor in this area.

The company operates a neat showroom in the center of Vienna. Under his direction are three dealerships and a single salesman. Mr. Finsterle himself is a crack salesman, and closes much of the company's business at first hand.

About 180 units were sold this year up to the time I called, Mr. Finsterle said—and most of the sales had been for cash. This, of course, includes transactions made by the company through Vienna Power Co., which sells the units on a 20-month time payment basis.

Unit price of American-made refrigerators is high, because of the stiff import duties and taxes. Price of a 3½-cu. ft. unit sold by the company

is about 1,100 shillings, or \$225 in American money.

Mr. Finsterle's experience with direct mail advertising has been quite different from that of his former associate, Mr. Warchalowski. So successful has it been for him that now he doesn't use anything else. Newspaper advertising has been dropped.

Crosley's policy regarding foreign representatives, at least in Austria, Mr. Finsterle finds considerably different from the terms he obtained when he was associated with Frigidaire.

### Gellert Assembles Units

OSKAR GELLERT, sales representative for Ignatz Gellert & Co., Vienna, told me that the company is preparing a household unit for the home market—more than that, he let me have a look at it. The cabinet is Austrian-made, and was chiefly notable in that it was decorated with Monel metal strips.

The company handles Westinghouse equipment, and some German-made units. For the most part, the firm buys American products and assembles them into complete units on the other side of the water. Companies with which the Gellert organization deals with in this country include Universal Cooler, Fedders, Parker Mfg. Co., Penn, and Melchior-Armstrong-Dessau.

### Swedish Electrolux Runs Viennese Branch

Electrolux AG has a stock of gas refrigerators in Eisenplatz 3, Vienna. The firm is operated from Stockholm as a branch office, and the stock is owned by the head company. Managers of the firm are Messrs. PEREN and GOSCHEL.

From Vienna headquarters, the company handles deliveries in Lenz, Graz, Klagenfurt, Innsbruck, and Salzburg.

During the first seven months of 1935, 263 American refrigerators were imported in Vienna. During that time, according to the managers, Electrolux sales were 143 units, which would indicate that the company gets a good share of the total business done.

Recent encouraging development in Electrolux sales has been a program of cooperation with Vienna Gas Co. The utility doesn't sell refrigerators, but does have men out canvassing and digging up prospects who are turned over to the Electrolux organization for follow-up and closing.

Electrolux has few dealerships operating in Austria, my informants said.

### Other Companies In the Field

Maschinenbauanstalt Hermann Mayer, at Laxerburgerstrasse 36, Vienna, handles Frigomat refrigerators and also does a good deal of assembling work on its own equipment. ALFRED REICHSFELD is associated with the commercial sales department of the company.

Kelvinator distributor in the city is L. GUTTMANN, at Schonbrunnerstrasse 77. White, Child & Beney, at X Troststrasse II, manufactures small refrigerating machines and some ventilation equipment.

## Modernistic Skyscraper Marks Change from Gay Vienna of Pre-War Days



1. Viennese street scene. 2. Balcony of modernistic restaurant on the top floor of Vienna's tallest skyscraper. Editor Taubeneck was taken here for lunch by Messrs. Warchalowski, Finsterle, and Alfred Reichsfeld (Frigomat dealer). 3. Mr. Warchalowski (right) checks a set of coils made in his own plant. 4. Typical headquarters for Austrian distributor of American specialties.



## Frances Weedman Made Director of Kelvin Kitchen

DETROIT—Appointment of Frances Weedman, widely known domestic science authority, as director of home economics for Kelvinator Corp. has been announced by Sam C. Mitchell, director of advertising. In this capacity Miss Weedman will be director of the Kelvin Kitchen.

Miss Weedman, immediately upon graduating from the University of Illinois, became a professor in the School of Domestic Arts and Sciences, Chicago.

Conducting domestic science schools both here and abroad, Miss Weedman has traveled extensively, studying the problems of housewives in various sections of the world. For the past 10 years she has been manager of the home economics department of a large industrial corporation.

Miss Weedman has written many articles on home-making problems, and is the author of a domestic science text, *Manual of Miracle Cooking*.

In assuming her new post with the Kelvinator organization, Miss Weedman stated that she planned an extensive educational program covering the latest trends of domestic science.

With the rapid increase in the use of electrical appliances, Miss Weedman declared, manufacturers of such equipment are now faced with the responsibility of educating the housewife in the correct and most advantageous use of these appliances, and with keeping her informed of the most recent innovations in the field of domestic science. This may be done, she says, through schools conducted by distributors and dealers, by the circulation of booklets of instruction, and by education in the public schools.

This education is particularly needed, Miss Weedman thinks, in rural sections which only recently have been supplied with electricity.

## Vermont Group Attends Four Conventions in Single Week

DETROIT—The Leonard convention here last week was the fourth meeting of a manufacturer's group which five members of the Vermont Hardware Co., Burlington, Vt., attended since they left home Dec. 4.

Lee S. Ramsey, sales manager in charge of the company's automotive accessories division; H. W. Maxham, J. M. Ingerson, C. H. W. Farnham, and J. H. Viele left Burlington to attend the RCA distributors convention in Philadelphia on Dec. 4. Then they visited the factory of Altorfer Bros., washer manufacturer, in Peoria, Ill.

Next the men attended the convention of Motor and Equipment Association, Chicago, coming from there to Detroit for the Leonard factory meeting.

## Blotter Promotion Features Gas Users

TWO RIVERS, Wis.—Blotters containing the names of prominent Two Rivers citizens using gas refrigerators, distributed throughout the city, have been the adaption of the "use the user" sales principle employed by Wisconsin Public Service Corp. office here to promote sales of Servel Electrolux units.

The blotters are distributed to schools, banks, and other public places, as well as to private homes. The idea has proven most effective, according to Dale Remington, advertising manager at the company's Green Bay headquarters, who designed and produced the promotion.

## Year's Sales Total 27 In Town of 183

DEANS, N. J.—This small northern New Jersey town has only 183 inhabitants, but George Weber, local Kelvinator dealer for Krich-Radisco, Inc., Newark, has sold 27 refrigerators here so far this year, according to Reed M. Powell, Krich-Radisco's sales promotion manager.

During 1935, Mr. Weber sold 14 Kelvinators.

## Magee Westinghouse District Manager

BALTIMORE—John Magee, former industrial supervisor for the Baltimore district of Westinghouse Electric & Mfg. Co., has been promoted to the position of district manager, succeeding the late Charles V. Woodward, who died last week.

W. J. English succeeded Mr. Magee as industrial supervisor.

## EH & FA Contracts With 4 Utilities For Financing

WASHINGTON, D. C.—Electric Home and Farm Authority has announced closing of contracts with several more utilities, providing for cooperation between the Authority and the utilities in financing sale of electric household appliances for use by consumers located on the utilities' power lines.

Among the utilities mentioned by the Authority were: Middle Tennessee Electric Membership Corp., Murfreesboro, Tenn.; South West Tennessee Electric Membership Corp., Brownsville, Tenn.; Whitley County Rural Electric Membership Corp., Columbia City, Ind.; and Board of Lights and Water Works, Marietta, Ga.

Effective immediately, Majestic radios, A-B ranges, Horton ironers, and Kelvinator milk coolers are eligible for financing through this plan.

## Cooperatives Discussed At Milwaukee Dealer Group's Meeting

MILWAUKEE—Consumer cooperatives and their competitive threat to legitimate retailers, and television and its immediate application here, were the two subjects discussed before the December meeting of the Wisconsin Radio, Refrigeration, & Appliance Association, held at the Knickerbocker hotel last week.

E. J. Malloy, organizer and president of Marketing Association, Inc.—a group of retail trade associations organized under this name to protect the retailers' interests in the consumer cooperative movement—traced the growth of the movement and explained its ultimate effect on retailing.

Walter Damm of radio station WTAM spoke on television, which according to H. L. Ashworth, executive secretary of the Wisconsin Radio, Refrigeration & Appliance Association, may come within the coming year.

## Smith Heads Hotpoint Home Laundry Sales

CHICAGO—George H. Smith, formerly district appliance manager of the General Electric Supply Corp., Detroit, was appointed manager of the Hotpoint home laundry sales division of the Edison General Electric Appliance Co., reports R. W. Turnbull, new vice president and general sales manager of the appliance company.

Mr. Smith has served in every branch of the electrical industry—wholesale, retail, and manufacturing. He was first employed by the Hurley Machine Co., of Chicago. After being with this company eight months, he resigned to become sales manager of the Litscher Electric Co., Grand Rapids, Mich.

His next position was sales manager of Caswell, Inc., Detroit, in 1931. Following this he was appointed sales manager of Clark Adams, Inc., Atlantic City, N. J., distributor for G-E.

Mr. Smith joined the General Electric Co. in 1933, as a laundry equipment specialist in the appliance merchandise department. Successive positions which he held were that of assistant sales manager of the Bridgeport G-E branch heating device section, and manager of the sun lamp section.

## Tinsley Named Leonard District Manager

DETROIT—W. S. Tinsley has been appointed district manager for the middle western territory of Leonard Refrigerator Corp., according to an announcement just made by R. I. Petrie, Leonard's general sales manager.

Making his headquarters in Kansas City, Mr. Tinsley succeeds George B. Gray, who has been transferred to the southeastern territory, with headquarters in Atlanta, Ga.

For the past five years, Mr. Tinsley has been manager of Moser & Suor, Kansas City household appliance distributor, and for seven years preceding that, was midwest district manager for RCA-Victor.

## Federal Bill to Bolster State 'Fair Trade' Laws Sponsored by Senator Tydings

WASHINGTON, D. C.—Minimum resale prices in commerce to states permitting price maintenance would be legalized by passage of a revised "Fair Trade" bill to be introduced to the Senate at the forthcoming session of Congress by Maryland's Senator Willard E. Tydings.

Congressman John E. Miller, Arkansas, who materially aided passage of the Robinson-Patman bill, will sponsor the new trade bill in the House.

With Fair Trade laws now in effect in California, Washington, Iowa, Wisconsin, Illinois, New York, New Jersey, Pennsylvania, Maryland, Virginia, Ohio, Louisiana, and Rhode Island, manufacturers in other states have been in danger of violating the Sherman Act if they entered into any resale price agreements with state distributors.

The proposed amendment to the Sherman Act would qualify the act with this provision:

"That nothing herein contained shall

render illegal, contracts or agreements prescribing minimum price or other conditions for the resale of a commodity which bears, or the label of a container which bears, the trade mark, brand, or name of the producer or distributor of such commodity and which is in free and open competition with commodities of the same general class produced or distributed by others, when contracts or agreements of that description are lawful as applied to intrastate transactions, under any statute, law or public policy now or hereafter in effect in any State, Territory, or the District of Columbia in which such sale was made, or to which the commodity is to be transported for resale.

"And the making of such contracts or agreements shall not be an unfair method of competition."

Referring, as it does, specifically to intrastate transactions, this bill is much more specific than the one introduced by Senator Tydings during the last session of Congress.

## Westinghouse Supply Is Baltimore Outlet

BALTIMORE—Local branch of Westinghouse Electric Supply Corp. has taken over distribution of Westinghouse refrigerators in the metropolitan Baltimore area.

S. Gordon T. Parks, former president of Parks & Hull Appliance Corp., until recently distributor for Westinghouse refrigerators in this area, severed his connection with the firm to accept management of Westinghouse Supply Corp.'s newly created refrigeration division.

J. T. Ridgeway remains as manager of the local Westinghouse Supply branch, and Leonard W. Passano will continue to cover western Maryland and the Eastern Shore for this organization, but several additions are planned for the metropolitan sales force.

A complete refrigeration service department also is to be established.

## Full Page Advertisement Heralds Houston Dealer

HOUSTON—Acme Radio & Refrigeration Co., local appliance store owned by H. L. Bayne and M. P. Cleboski, has opened for business at 3907 Main St.

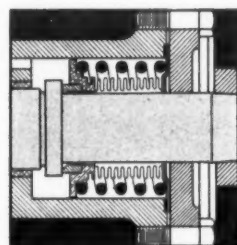
Featuring a complete line of Westinghouse electric refrigerators, washing machines, and other appliances, the store will also maintain a complete appliance service department.

Mr. Bayne, before starting the Acme company with Mr. Cleboski, had spent 10 years with a local refrigeration firm. Mr. Cleboski, for seven years a Tel Electric Co. employee, spent another seven years with General Electric Supply Corp., and later worked for four years with a local radio and refrigeration firm.

The opening of the new establishment was announced by a full page ad in the *Houston Chronicle*.

## BRUNNER'S "BALANCED SEAL" IS Leak Insurance

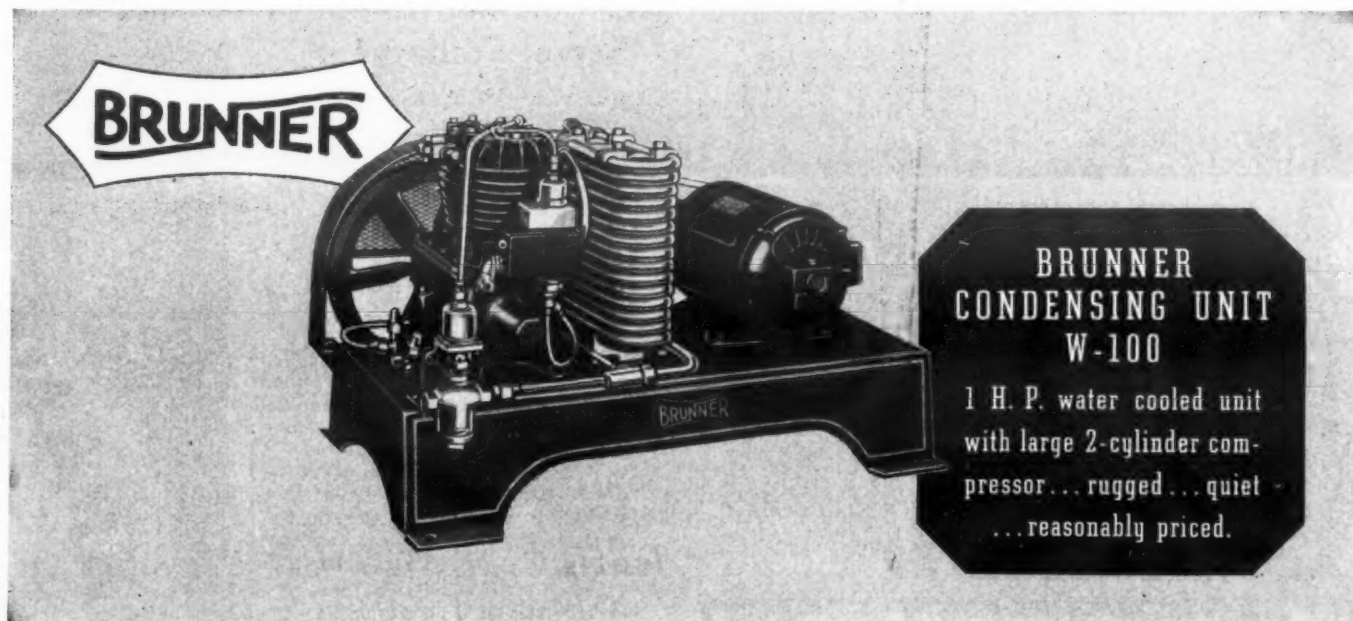
The diagram to the right shows, in blue print style, how Brunner engineering prevents leaks at one of the most vital points in mechanical refrigeration: where the crankshaft inserts into the crankcase. A unique, accordion-like sealing device is so designed that a constant pressure is exerted on the seal nose regardless of the crankcase pressure. Leakage is positively prevented, no matter if the inside pressure is greater or less than



atmospheric pressure. Think of this advantage in terms of safety and economy! Get the full mechanical details of Brunner's "Balanced Seal" and companion features. See why Brunner is "The Fastest Growing Name in the Industry". Brunner

Refrigerating and Air Conditioning equipment ranges from 1/4 H. P. to 15 H. P.—forty-seven condensing units, and five compressor models, air and water cooled. Catalog on request.

BRUNNER MANUFACTURING CO. \* \* \* UTICA, N. Y., U. S. A.  
WEST COAST BRANCH OFFICE AND WAREHOUSE: 1501-09 WEST 8TH STREET, LOS ANGELES, CALIF.



## BRUNNER CONDENSING UNITS and COMPRESSORS



## Commercial Refrigeration

### Citing Examples of Business Increases Among Local Merchants Aids Sales Story of Lubbock, Texas, Dealer

LUBBOCK, Tex.—With sales of commercial equipment accounting for more than \$5,000 of the firm's monthly business volume, the Household Supply Co. here does approximately 80% of the commercial refrigeration business in its territory.

"Selling the prospect commercial refrigeration, air conditioning, and counter freezers, when he does not realize he is in the market, accounts for a large percentage of our commercial sales," explains Lee B. Davis, vice president.

"We don't wait for new installations," says Mr. Davis. "A large part of our business is with merchants who already have some form of refrigeration. Our theory is not to pose as economy experts and economists, but to cultivate the merchants and learn their problems."

Illustrating how prospects are handled, Mr. Davis explains: "We tell Bill Jones the druggist how a merchant in the next town reduced his expenses and stepped up his volume by installing a new refrigeration unit, or how a new fountain, a larger counter freezer, or some similar installation jerked his sales out of the doldrums and put his business on a paying basis."

### Dry-Zero Insulation & Kold-Hold Units Used by Borden

SAN FRANCISCO—Borden Dairy Delivery not only uses Dry-Zero insulation in its truck bodies, but also in its portable, knock-down holding rooms.

A new 1,800-gal. truck body insulated with eight inches of Dry-Zero and refrigerated by six Kold-Hold units booked up with a remote-control Freon system has just been completed in the company's own shops.

The body is built with staggered studs and joists to reduce heat entry to a minimum. The galvanized floor lining is carried one foot up the slides. The floor itself is of 3/4-in tongue-and-groove redwood. Sides and roof are of waterproofed western pine.

Four of the portable holding rooms are now in use, located at strategic points in outlying sections where ice cream is held for distribution. Each room holds 1,000 gallons of ice cream, and each is insulated with eight inches of Dry-Zero.

Refrigeration is supplied by a Freon system with ceiling coils and a 2-hp. York compressor. The rooms will hold a temperature of -10° F.

Mr. Davis and one assistant, Ivan D. Mardis, handle the firm's commercial selling, and in addition, sell domestic refrigerators.

"We never pass along confidential figures from one direct competitor to another; we select examples from non-competitors," Mr. Davis says. "Quoting a local example means more to the average merchant than any number of testimonials or statements from merchants in other sections of the country."

"The average druggist or other prospect is quick to assume that his climatic conditions, his clientele, and the shopping habits of his customers, are different from those in other localities, so we confine comparisons to local examples," says Mr. Davis.

That proper refrigeration can reduce waste to the extent that an average gross profit of 50% can be made in the fountain department, (claimed to be the most profitable department in the average drug store) is one of the pet theories which commercial salesmen of the Household Supply Co. use.

During the past nine months this firm has installed 10 major soda fountain installations, plus 10 counter freezers.

### Truck Refrigerated For Beer, Ice Cream

THIEF RIVER FALLS, Minn.—Two sections of the three compartment refrigerated semi-trailer owned and operated by Bridgman Creamery, Inc., here are used for carrying kegs and cases of beer; the third compartment has a capacity of 329 gal. of ice cream.

Refrigeration is supplied by two model H-481 low temperature Kold-Hold cooling units mounted in the ice cream compartment, and a 3/4-hp. Frigidaire compressor.

Beer sections are held at 40°; ice cream section at from -1 to 8°.

Six inches of Dry Zero insulate the roof, and 6 in. of cork are used in the floor.

### Moses Transferred to McCray Home Office

KENDALLVILLE, Ind. — R. S. Moses, former district sales manager for McCray Refrigerator Co., is now associated with the sales department at the home office.

Mr. Moses will train new salesmen and distributors, and be in charge of the factory salesroom.

## Koch Markets Low Cost Counter for Economy Market

KANSAS CITY, Mo.—To meet the demand for a low cost, substantially built counter, Koch Butchers Supply Co. is bringing out the Koch "Econ-O-Case," a welded steel, corkboard-insulated, tripleglass display case finished in Dulux.

Insulated with 3 inches of corkboard, the case has three thicknesses of glass in its front compartment, set in by the Koch patented sweat-proof method. Hard rubber doors, heavy hardware, and triple-coated porcelain interior display section are other features of the new line.

The case is shipped complete with specially engineered coils and baffles, claimed to deliver high humidities at near-freezing temperatures.

### Enlarged Distribution, Increased Promotion Planned by Russ

CLEVELAND—Enlargement of its distribution facilities and increased promotional activities are two means which Russ Soda Fountain Co. has taken to meet the continued upswing in business conditions which it believes will characterize 1937, President H. C. Wilmarth announced Sunday at the annual fall meeting of regional sales managers.

"It is certain that the present general buying upswing reflects a definite return that has characterized business transactions for the past five years. The industrial lethargy of the depression is rapidly being replaced by a determination to act, and act now," Mr. Wilmarth said.

"Reflecting this spirit of recovery, we are planning a definite program of expansion that will put us in position to better serve the reawakened market for soda fountain and luncheonette equipment during 1937."

"Our immediate plans call for many additions to our present distribution setup, to bolster those territories in which we need more intensive coverage on our line of Monarch fountains and dairy store equipment."

"New methods of consumer contact, new means of follow-up, and a new promotional program will be instituted to insure maximum efficiency in handling the requirements of prospective buyers."

### Kold-Hold Truck Unit Cuts Costs, Increases Business 20 Percent

GREER, S. C.—Installation of a Kold-Hold system in the truck operated by Silver Leaf Dairy here has increased that company's business by 20% in four months, according to John Hudson, owner and manager.

Total operating cost for Kold-Hold refrigeration is less than 25 cents per day, he states, compared to \$1.50 or \$2.00 per day with the old salt and ice system.

Two Kold-Hold units are mounted in a body insulated both with cork and kapok. Capacity is 210 gal. of milk, plus a separate butter compartment.

Body is loaded directly from bottling machine and then connected to a 1 1/2-hp. ammonia plant for pull-down. When disconnected, interior temperature ranges from 26 to 28° F. After use, temperatures average from 36 to 38°.

### Scranton Abattoir Buys Servel Equipment

SCRANTON, Pa.—Spencer-Graham Co., abattoir operators at Uniondale, have had their plant equipped with Servel commercial refrigeration, installed by Electric City Store Fixture Co., Servel distributor in this territory.

Designed to handle a maximum product load under extreme conditions, the job is equipped with two 2-hp. Servel air-cooled machines and four Servel Humidrafts.

As the load varies considerably, controls have been installed which provide for the cut-off of one machine and the entire Humidraft combination when less capacity is required.

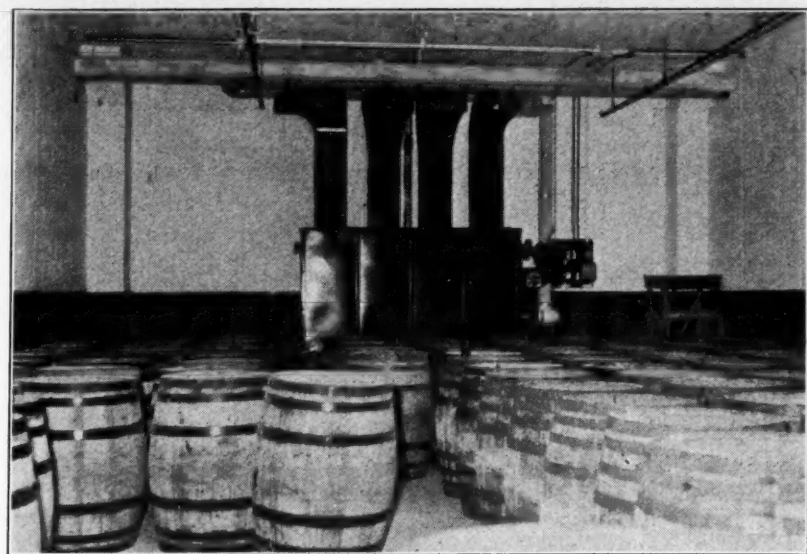
Two large meat market installations have also been made recently by this distributor.

### Harlan Confers Two New Kelvinator Franchises

DETROIT—Appointment of two new Kelvinator distributors has just been announced by J. A. Harlan, commercial manager.

The Canada Dry Ginger Ale, Inc., New York City, has been appointed distributor for beverage coolers, and Macatee, Inc., Dallas, Texas, has been appointed automatic heating and air-conditioning distributor for Dallas.

## Refrigerated Drug Storage Room



Air-conditioned storage room in the Upjohn Mfg. Co. plant at Kalamazoo, Mich. The ducts through which the air is diffused are shown at the end of the room. Relative humidity is kept at about 85%. A Kelvinator 15-ton condensing unit is used.

### Golden Rod Co. Buys 300 Mills Freezers

CHICAGO—Golden Rod Ice Cream Co. here has contracted with Mills Novelty Co. for 300 counter freezers. The contract represents a purchase totaling \$350,000, the largest single purchase of counter freezers ever made, according to Mills officials.

First 25 or 30 counter freezers will be installed immediately in the Chicago public schools, for use in making ice cream and malted milks for school children.

Golden Rod Ice Cream Co. is said to be the first commercial ice cream manufacturer to entirely use mechanical refrigeration for the freezing of ice cream.

### Artificial Ice Pack Used to Freeze Sliding Earth

WASHINGTON, D. C.—A huge \$30,000 artificial ice pack was used by government engineers working on the Grand Coulee dam to freeze 200,000 cubic yards of earth immobile, and thus stop a landslide, according to Department of Interior reports.

Power shovels digging for the dam foundation could make no progress against a great bank of clay which was sliding into the excavation at the rate of two feet per hour.

Engineers estimated it would cost more than \$100,000 extra to dig away the sliding earth, so they bought second-hand two big refrigerating machines which could produce over 80 tons of ice a day. Using these machines and about six miles of pipe line, they froze the bank solid until excavation work in that section was completed.

### Drugs Protected by Refrigeration

KALAMAZOO, Mich.—The Upjohn Co., local pharmaceutical manufacturer, has just completed installation of a Kelvinator refrigeration system, to preserve products for shipment.

The installation, providing 13 tons of refrigeration, was made by North Lumber Co., Kelvinator Kalamazoo distributor. It includes a 15-hp. condensing unit, operating two cooling units, one of 8 1/2 tons capacity and the other of 4 1/2 tons.

The system maintains a temperature of from 44 to 48° F. in a part of the basement of a large new building now under construction for manufacturing purposes. In one room, 60 by 67 feet, space for storage of 50,000 lbs. of packaged drugs is provided; the other, 43 by 22 feet, is large enough to handle 16,000 lbs. daily.

Temperature in the larger room is kept at 48°; in the smaller room, a temperature of 44° is maintained.

Relative humidity is kept at 85%, because a drier atmosphere would cause the barrels in which the drugs are stored to dry out somewhat.

Air is diffused through the refrigerating rooms by fans located in the cooling units. Tests made since the installation show an even temperature throughout the room.

The whole system is controlled by a unique panel installed by North Lumber Co. engineers. Operation is automatic, with solenoid valves so set as to regulate the temperature. These valves, however, are by-passed so that the system may be controlled manually at any time, if desired.

Electric warning lights on the panel board signal the operator instantly in case any of the equipment should fail to function properly.

**in retreat**

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## Merriam Commercial Refrigeration Dept. Sells Large Installations

SCHENECTADY—Several good-sized applications of commercial refrigeration equipment have been made this season by salesmen of the A. Wayne Merriam, Inc. distributorship, under the supervision of B. W. Stryker, commercial sales manager.

In Brady Memorial Hospital, Albany, Merriam salesmen installed G-E equipment of four walk-in coolers in the kitchen, and another in one of the diet kitchens. A second diet refrigerator and a 500-lb. ice maker were included in the installation.

Three G-E condensing units operate the equipment, replacing an ammonia system which had been in use in the hospital for about 20 years.

In the Nicholas Restaurant, Schenectady, two G-E condensing units were connected to chilling units in

the chef's box and in two walk-in coolers.

Another interesting installation was a shell-and-tube water cooler, connected to a CMF-81L condensing unit, cooling water for a carbonator bottling machine in the plant of Fitzgerald Bros., Amsterdam. The equipment delivers 200 gallons of water per hour, cooling it from 70° F. to 38° F.

Five installations of milk cooling and storing equipment were included in recent Merriam jobs. The equipment, practically the same in each case, included a walk-in cooler, a 300-gallon brine tank, chilling unit, and a CM-6A condensing unit.

In the industrial market, pressure water cooling installations were made in the Revere Brass & Copper Co. and the General Cable Co. plants, both in Rome, N. Y.

## Ten Models Comprise Russ Ice Cream Cabinet Line

CLEVELAND—Ten compact models, with individual capacities ranging from 20 to 60 gallons of ice cream, comprise the new line of Russ Trayveyor dispensing cabinets, introduced by Russ Soda Fountain Co.

These cabinets are completely dry, contain the Russ patented feature of sliding compartments, and employ scientific application of specially drawn refrigerant tubing to effect economy.

Variable temperature control enables the user to hold the ice cream at the hardness desired.

All-steel frames, full insulation, piano-hinged covers, and stainless steel working top are standard features on all models.

## McWhinney to Handle Super-Cold Line

SAN PIEDRO, Calif.—McWhinney Electric Co., has been appointed distributor of Super-Cold display cases and commercial refrigeration equipment in this territory.

**VIRGINIA SMELTING Company**  
WEST NORFOLK, VIRGINIA  
131 STATE ST. BOSTON-75 BEAVER ST. N.Y.

**EXTRA DRY ESOTOOL**  
LIQUID SULPHUR DIOXIDE  
**V-METH-L**  
VIRGINIA METHYL CHLORIDE

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Following the spare time home study that gives the principles of refrigeration and their practical application to ALL TYPES of equipment, U. E. I. men get two weeks of actual servicing and installing experience on all types of household and commercial refrigerating equipment.

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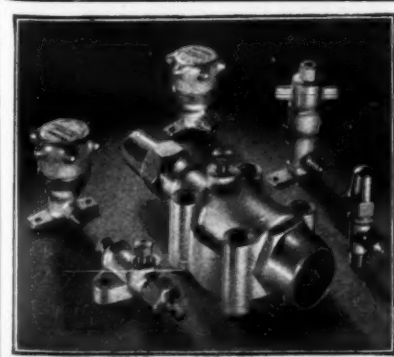
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HARVEY, ILLINOIS

## Quaker Maid Dairy Buys 2 Refrigerated Trucks

GOLDSBORO, Md.—Two mechanically refrigerated trucks were purchased this year by Quaker Maid Milk Co. to transport milk bottled in Goldsboro to their branch plant in Philadelphia.

A York 1½-ton Freon ice machine powered by a 4-hp. Briggs & Stratton motor holds the milk at a temperature of 40° F. during the 80-mile trip. The bodies are insulated with 2 inches of Dry-Zero.

Built by Fruehauf Trailer Co. and attached to Chevrolet tractors the bodies carry 300 cases, or approximately 9 tons, each.

## Frick Equipment Sold For Atlanta Abattoir

ATLANTA—Davidson-Kennedy Co., Atlanta distributor for Frick Co., recently installed Frick refrigeration in United Butchers Abattoir, here.

Designed by H. P. Henschien, the plant handles over 1,000 cattle weekly. Because of sanitation requirements gas heat is used exclusively.

Cold brine is used as the refrigerant, and long brine sprays in special ducts run overhead through the holding rooms. In the chill room vertical spray cabinets are installed between the rows of tracks.

The brine is both cooled and stored in a tank measuring 21 feet 8 inches by 5 feet 4 inches by 4 feet 4 inches. Submerged in one end is a verti-flow unit evaporator of 571 sq. ft. surface. An accumulator is placed above the verti-flow coil to which liquid is fed by a float valve control of the liquid level type.

The machine is a 7 by 7 and was furnished complete with high side. A cooling tower of 125 g.p.m. capacity is located on the roof, directly above the compressor.

## J. L. Baker Honored At RMA Meeting

WASHINGTON, D. C.—J. L. Baker, formerly president of Baker Ice Machine Co., Inc., was honored by members of Refrigeration Machinery Association in their recent annual meeting here.

Mr. Baker, active for 30 years in the refrigeration field, collaborated with John Larsen, early designer of refrigerating equipment, in producing the first Baker compressor in 1935.

Mr. Baker retired from the company some time ago, the firm continuing under the direction of his two sons.

## Terre Haute Bakery Buys Insulated Trucks

TERRE HAUTE, Ind.—Three bodies equipped with Dry-Zero insulation recently were built for the Ideal Baking Co. by Giffel Body Mfg. Co., a local concern.

Tops and sides of these streamlined bodies are insulated with 1½-inch Dry-Zero Sealpad, 2 inches being used in the floor. The bodies are divided into two compartments, lined with plywood, and each has 1-ton load capacity. The new units are used for delivering baking goods in Terre Haute and within a 25-mile radius.

## Produce Display Case Is Marketed by Sherer-Gillett

MARSHALL, Mich.—Latest addition to Sherer-Gillett Co.'s commercial refrigerator line for 1937 is a refrigerated case for the display and storage of produce.

The new case is available in 10 and 12-foot lengths, with an open base for display of items not refrigerated, or a refrigerated base for storage. At the center of the base a space is provided for paper bags.

Announcement of the unit is being made, Sherer-Gillett officials said, after a study of the need for one of this type in today's food markets. Merchants who have been using models of the case for several months report good results from display, as well as a lowering of shrinkage and spoilage losses, officials added.

## Carrier Makes Eight Ship Installations

NEWARK—Carrier equipment will cool an 1,120-cu. ft. refrigerator, a 890-cu. ft. chill room, and a scuttle butt with a storage capacity of 40 gals. of drinking water in each of the eight new Standard Oil Co. of New Jersey tankers, just being put into coastwise service.

Each compartment will be cooled by means of extra heavy galvanized steel coils. Temperature adjustment for each space is made by by-pass valves. Because tanker service is one of the most strenuous marine applications, the entire refrigeration system is of heavy-duty design.

All of the refrigeration systems will be identical, consisting of an ammonia compressor direct connected to a 5-hp. motor, with gear head drive and mounted in a single base.

The construction of the ships at a cost of \$13,000,000 involves the largest single order ever placed by a private concern for marine construction. The first tanker will be placed in service in September, 1937, for transporting gasoline and crude oil. Each ship will have a capacity of 105,000 barrels.

Carrier equipment, officials say, has also been installed on 46 Texas Co. vessels, more than 60 ships for Standard Transportation Co., more than 65 for Gulf Refining Co., and 72 for Standard Oil of New Jersey, as well as on numerous tankers operating between North and South American fields, and others in foreign service.

## Jewett Awarded Large Government Orders

BUFFALO—Contracts to supply refrigerators for the new Department of Interior building and the Federal Reserve Board building in Washington, D. C., another for a large PWA job in Texas, and a hotel order, have been received by the Jewett Refrigerator Co., Inc. here, officials announced recently.

The PWA project is that for the City-County Hospital, the hotel is The New Williamsburg Inn of Williamsburg, Va. The inn will be opened next spring, and will have all public rooms and 50% of the guest rooms air conditioned.

## McCray Distributorship Changes Announced

KENDALLVILLE, Ind.—Several changes have been made in the distributor setup of McCray Refrigerator Co., according to company officials.

C. A. Russell is the new distributor at Terre Haute, Ind., succeeding E. D. Halsey, who is now district sales manager for McCray. Earl F. Brown, Green Bay, Wis. distributor, has moved to new quarters at 707 S. Broadway, Green Bay.

Charles Earnest Busch, Mason City, Ia., has been appointed McCray representative in 13 Iowa counties.

G. F. Hutchinson is now McCray distributor in South Bend, Ind., operating under the name of Northern Indiana Distributing Co.

## G-E-Russ Bar Used In Esquire Room

HARRISBURG, Pa.—M. E. Bender, commercial refrigeration salesman for Keystone Appliances, Inc., recently sold the management of the Penn-Harris Hotel here on installing a G-E-Russ bar refrigeration system in the newly-opened "Esquire" room.

Designed exclusively for men, the "Esquire" room, combined grill and bar, is smartly decorated in the latest Esquire motif. Windows are painted to represent the cover of Esquire magazine, menus are designed like miniature editions of this publication, while original Esquire drawings decorate the walls.

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**ECON-O-CASE**

**DOUBLE DUTY IN LENGTHS OF 6½, 8, or 10 FEET**

Not just insulation, but solid corkboard . . . not just glazing, but triple glazing, set by the patented Koch sweat-proof method . . . genuine Dulux baked in the high temperature Koch ovens.

Yes, the Koch Econ-O-Case is low in price. But every detail of design and construction meets the high standards of the entire Koch line.

This new display case, sold only through distributors, opens a vast new market for Koch Equipment. Write for specifications and details.

**KOCH REFRIGERATORS**  
North Kansas City, Mo.  
ESTABLISHED 1883

**WRITE TODAY FOR PROPOSITION**



## AIR CONDITIONING AND REFRIGERATION NEWS

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## Watch Credit!

CONVERSATIONS with dealers, distributors, and department store appliance managers this fall reveal an amazing inconsistency of experience with regard to "reverts" this year. Too large a number of dealerships have had too high a percentage of refrigerator repossessions for those who guide the industry to view the situation with anything other than genuine concern.

For a number of years the household refrigerator has gone along with the most enviable record in the time payment business. Percentage of repossessions has ranged annually from a fraction of a per cent to less than 2%. Figures for this year are not likely to show an alarming rise when finally compiled, for the instalment finance companies report that the great majority of dealers have kept repossessions down to their customary low levels.

But for the first time, a tendency toward a high percentage of "reverts" has been discerned. This tendency has been made particularly noticeable because of the fact that it has been remarked in larger retailing establishments, such as department stores. These "big dealers" are something like the "vociferous minorities" in politics—they make themselves heard, perhaps, more than their relative position justifies.

The fact remains, however, that a number of large dealerships have suffered sad experiences on repossessions in 1936. One department store chain reports 18% repossessions in 1936. One department store has found it necessary to add a man to each appliance department whose duties consist of calling on customers who want to send their refrigerators back, in the hope of dissuading them.

Still another department store has repossessed so many refrigerators this year that the executives decided to dispose of them all in a special sale, calling them "demonstrator" models!

According to the finance companies, the electric refrigerator itself is still as good a bet as it ever was from the standpoint of permanency of sale. A refrigerator is stationary; it does not move about and get into accidents; it gives demonstrable value received almost from the first day of its installation; and from every angle it is the ideal time payment risk.

The rub in the situation, say

they, is laxness in credit departments. Watch credits, is their advice, and make "demonstrator" sales unnecessary.

What with the coming of trade-in refrigerators, and the attendant necessity of their profitable disposal, the above advice would seem to be particularly pertinent at this time.

## New Hope from South America

SECRETARY OF STATE Cordell Hull is said to be making real progress in Buenos Aires toward the negotiation of Pan-American treaties which will have as their objective a freer trade between nations of the Western Hemisphere. If this report materializes, all parties concerned are to be congratulated. It is about time.

Despite many conferences between various groups of countries looking to collective action of a trade-liberating character, and the attempted beginnings of such concerted efforts in a limited way, the practical results thus far from international agreements have been of little general significance.

The majority of the foreign trade-control measures adopted by individual countries during recent years have continued to be dominated by the protective and restrictive motive. Immediate relief from current local pressure has been the dominant objective, with comparatively little recognition that there are distinct limits to recovery through expansion of the home market only—a recognition that is essential to the rebuilding of a long-time basis for a broader flow of international trade.

The modifications in trade-control measures that have issued from bilateral agreements between various pairs of countries during recent years, too often have been trade-diverting in effect, rather than trade-enlarging.

Moreover, in a striking proportion of instances, such agreements seem likely to weaken and to disorganize rather than to strengthen the network of triangular or many-sided transactions, the operation of which over past decades has been such a vital factor in the economic development attained by the different countries, and in the building up of the huge aggregate pool of world commerce, the benefits of which flowed back to all contributing countries, irrespective of the variations in the currents between individual countries.

A most disturbing feature of the recent commercial policy of many foreign governments has been the increased prominence of the idea that the value of the trade between each pair of countries should approximate an annual balance.

For various reasons arising out of the prolonged general depression, marked as it has been by the great shrinkage in foreign trade, the disorganization of international currency values and exchanges, and the practical cessation of international large-scale lending, the concern of a great many foreign governments, especially on the Continent of Europe, has recently been centered upon the improvement of their balance of trade, and thereby also upon their foreign-exchange rates and general financial position.

This often has seemed more important to them than the usual motives of protection to domestic producers from undue foreign competition, or increased governmental revenues, or even the desire to attain greater domestic self-sufficiency in certain commodities.

These recent developments and trends in the tariffs and commercial policy of foreign countries give particular point to the program

initiated by the Government of the United States, under authority granted by Congress in June, 1934, for the negotiation of trade agreements with foreign countries involving the reciprocal reduction of tariffs and other trade barriers now unduly restricting the sale of each country's products in the market of the other.

The sponsors of this program hope not only to revive the flow of international trade through a progressively growing series of reciprocal trade-liberating agreements, but also to give a distinctly new turn to commercial policy of the nations generally toward regaining the benefits of a broader flow of international exchange on a more sound and equitable basis.

## Letters

### France Is Not A Den of Thieves!

Societe Lorraine  
Des Anciens Etablissements de  
Dietrich & Cie, de Luneville  
Administration & Bureaux  
11 Rue de Tilsitt 17E  
Service Entretien & Depot  
93 Rue du Chateau, Boulogne sur Seine  
Magasin D'Exposition & De Vente  
104 Bould. Haussmann  
Paris, on the 30th of November, 1936  
F. M. Cockrell:

We received some days ago the News dated November the 4th and read with interest and surprise Mr. Taubeneck's story about his visit to Paris.

We understand that the News is a business paper distributed all over the world and read by a good number of people of different nationalities.

As a business paper the News should be business like printed, be neutral and polite in every respect and particularly in regard to its subscribers.

This is not the case with your article, "Around the World" published in the copy referred to.

The writer of this letter is French, his company is French and we have the most agreeable relations with American manufacturers. The writer has been several times to the United States and during his different trips through the States, he has always been treated by your "compatriotes" with the greatest courtesy.

An American citizen is always welcome in France and will always be, because there is so much similarity between our two Republics, and we have so many common historic features, which we shall never forget.

There are exceptions in every country of this world which of course have nothing to do with the general character of a nation, and when such exceptions happen to give a wrong picture of what they have seen or what they have felt, much must be forgiven, because those "exceptions" are more or less the despair of their own country and cannot be held responsible.

Suppose, that a French business paper distributed in the United States prints things like this:

"For the citizen of any other part of the . . . World (Paris) New York must be a Mecca: But for an . . . alien it is a Den of Thieves" . . . and other ridiculous statements which prove that the "journalist" spent most of his eight days vacation in speak-easies, night clubs, and other "amusements" where little is to be learned and much to be lost.

If your journalist paid 65 cents for a package of Chesterfields, please tell him that American cigarettes are considered as luxury and that the Frenchman pays the same price. Tell him also that he could have his luggage registered for the same train in which he traveled from Marseilles to Paris and have the luggage delivered the same day, and not nine days afterwards.

We doubt that he had to pay \$27.65 for transportation and wait nine days for his trunk, if it is the truth, we apologize for having a poor opinion of a man making a trip around the world and be so helpless when going through a civilized country even full of thieves.

When last summer the writer went through Chicago he paid \$1.50 for one single glass of French wine in a very honorable hotel, not in a night club. That does not mean that all Americans are thieves. What is the use to reproach each other similar incidents, something always happens in any city to a foreigner when he does not speak the language, but that is not a reason for classifying the entire population of a town like Paris under the same unkind qualifications.

We expected more courtesy from an American business paper, more psychology, and less insults.

This letter may be poor English but

the "Around the World" story is surely poor literature.

We would like to have this letter published in next News' copy.

E. RICARDO, Managing Director.

Answer: The News has expected foreign subscribers to be shocked at the candid reporting in the editor's "World Series," for not only is American journalism as a whole exceptionally free from restraint and censorship—in striking contrast to the European press—but AIR CONDITIONING AND REFRIGERATION NEWS has a well-established reputation for being particularly frank in publishing the bad news as well as the good.

American subscribers to the News are the sort who demand what is vulgarly known as the "low-down" on a situation, and that's what the editors strive to give them.

It was not at all the intention of the editor to insult the French people, nor to offer his experiences as a generalization. He simply reported what happened to him. However, instead of resenting such frankness in reporting, perhaps French businessmen would be wise to wake up to a situation which is costing them money—dearest thing to the French heart.

When the editor was in Paris, the local newspapers were making quite a fuss over statistics which had just been released showing the deplorable falling-off in the tourist trade, especially that coming from America, and calling on the government to do something about it.

At the International Congress of Refrigeration at The Hague, members of the American delegation—most of whom had brought their wives—were unanimous in their belief that "the French are a nation of highway robbers," an obviously erroneous statement on the face of it, but one based on their contacts with those who cater to the tourist trade.

In London, the editor's hotel was literally filled with Americans, many of whom declared that they had spent a day or two in Paris, left in a high dudgeon, and come over to London to spend the rest of their holidays.

As for the baggage episode, that occurred as reported. A representative of the General Electric Co. was with the editor when the shipping arrangements were made, and declared that the price was "about right." The editor then took a plane for Barcelona (instead of going directly to Paris from Marseilles by train), spent four days there, came on to Paris, and not until five days after his arrival in Paris did the baggage arrive at the offices of the General Electric Co.

That Subscriber Ricardo may have paid high prices in New York and Chicago, we don't doubt. So have we. Next time he visits America, we invite him to visit Detroit, a city which is proud of its French origins, delights in the traditional use and re-use of French names like Cadillac and La Salle, serves good wine at 40 cents a glass, and is especially hospitable to Frenchmen.

### Air-Conditioning Progress Accomplished That Way

Buensod-Stacey Air Conditioning, Inc.  
60 East 42nd St., New York City  
Dec. 2, 1936.

Editor:

Your editorial a few issues ago on the kind of Air Conditioning Distributor was rather to the point and we find that that is the way progress in the air-conditioning art is accomplished.

A. C. BUENSOD.

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Societe Anonyme  
65, 67, 69 Rue du Compas & 146 Rue Heyvaert, Bruxelles  
Brussels, Nov. 18, 1936

Publisher:

Referring to your letter of the 5th inst. we quite agree to take two additional copies of the 1936 REFRIGERATION SPECIFICATIONS BOOK for the credit balance of \$6.00 which our account shows.

We take this opportunity to congratulate you for this precious piece of work which we desire to put in hands of all our salesmen.

Hoping to receive soon the 14 books in question.

J. DONNET,

Secretary

### Is There an Independent Service Man in London?

C. A. Richards, Inc.  
304 East 45th St.  
New York, N. Y.

Editor:

Do you know of any independent refrigerator service men in London? We cannot find such a list in any of your publications, but we are wondering if you know of any, and, if so, would appreciate your giving us this information.

C. A. RICHARDS,

President

## How They Build That South American Sales Record

Joelson Bros.  
Electrical and Mechanical Engineers  
Showrooms: 30 Union Ave.  
Workshops: 67 to 77 Cameron St.  
Salisbury, South Rhodesia

Editor:

We have to thank you very much in giving us an opportunity to air our views in the Dec. 2, 1936, issue of your paper, but we are afraid this will reach you too late for insertion. We are hoping, however, that you will be able to make use of our data in some future issue.

We look forward to receiving your News, as we generally manage to pick up many a useful tip. We have been interested in the sale of refrigerators for the last four years, firstly, as the agents for the Electrolux Company of S.A. Ltd., and latterly buying direct from the manufacturers and selling on our account. Williams-Oil-O-Matic Heating Corp. at Bloomington, Ill., and the Perfection Stove Co. at Cleveland, Ohio, are our suppliers.

As agents for the Electrolux company, somewhere near 1,000 refrigerators passed through our hands during the period of our agency, we now hope to do as well, if not better, on our own account.

We have no troubles regarding Government restrictions in imports, and our customs tariffs are reasonable.

Sales are not difficult, once we get in touch with a prospective customer whose financial position, we think, warrants the purchase of a refrigerator. It would be hard to find a good Rhodesian who could resist the temptation of having a nice cube of ice to cool his Sundowner, by the mere outlay of a few pounds a month.

Our best sales argument, naturally, is that a refrigerator is not a liability but a decided asset, and money saved, particularly in outside districts where perishable foodstuffs are only delivered once or twice a week.

We do not think we can suggest any improvements, on the modern refrigerators. They meet the requirements of our territory quite well.

The personnel of our company consists of the brothers, Barney and Louis Joelson, who are the sole partners, assisted by a very competent staff. We are interested in all kinds of plumbing, hardware, sanitary ware, and everything in the electrical line.

Our American shippers are Messrs. J. A. Ewing & McDonald, Inc., of New York; and our bankers, The Standard Bank of South Africa, Ltd., at Salisbury.

L. JOELSON.

### An Invitation to Study South American Markets

International Machinery Co.  
Casilla 1843  
Lima, Peru  
Nov. 16, 1936.

Editor:

We have your letter of Oct. 16, inquiring about the activities of our company, the International Machinery Co., in regards to appliance merchandising. We are agents for the International General Electric Co. and stock and sell their appliances.

With reference to the questions about the service problem, our main problem here is humidity which runs an average of 80% the year round with 95% at least during the six winter months.

May we suggest that you plan a trip to Central and South America inasmuch as in all these countries they are actively merchandising American appliances. In case you do make such a trip, we would be very glad to have you make your headquarters in our office while in Lima.

R. W. HAGER.

### 'Around the World' Aids in University Course

Pittsburgh Plate Glass Co.  
Grant Building, Pittsburgh, Pa.

Editor:

I have followed with interest your article on "Around the World" appearing in the REFRIGERATION NEWS. The articles are not only well written, but very interesting and instructive.

One of my sons is taking the foreign service course at Georgetown university, and while home during the Thanksgiving holidays read your excellent article in the Nov. 25 issue. He was much impressed and asked me if you would be willing to send the complete series of articles that have already appeared. He believes they would be of considerable interest in his study course and he expressed the hope that you could meet his request.

Was it your plan to publish these articles in book form later on?

E. C. HYLAND.

### 'Thanks for the Trip'

General Household Utilities  
2638 N. Crawford Ave., Chicago

Editor:

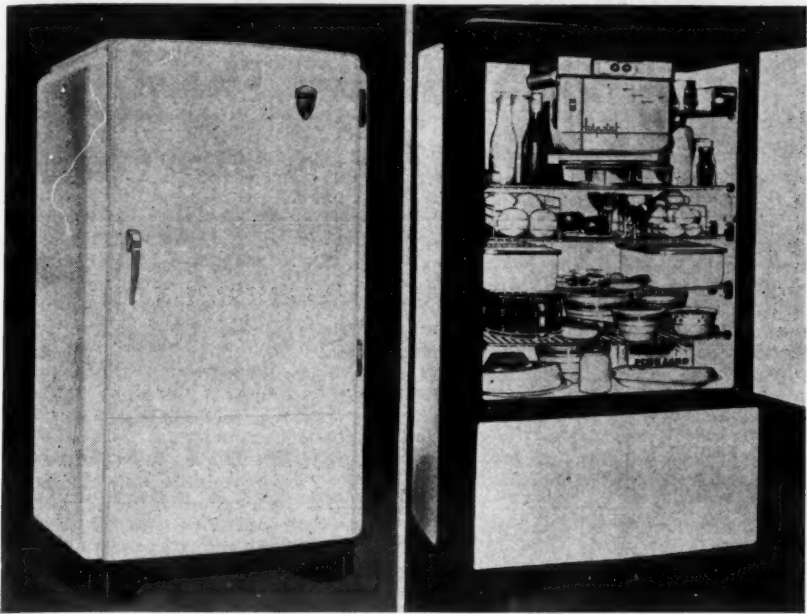
Thanks for "My European Tour" via your fine writings—It was tops—

J. J. DAVIN,

Sales Promotion Mgr.



## The Hotpoint Refrigerator for 1937



Exterior and interior views of the 1937 Hotpoint lines, designed this year in three series, standard, deluxe, and Imperial. All series will be equipped with "Thriftmaster" hermetically sealed condensing units.

### Hotpoint to Continue Popular Range Models, Extend Line in 1937

(Concluded from Page 1, Column 1)  
plate and hinges have a black satin finish, and the porcelain models feature a black trim.

New convenience features include "gliding" shelves, and a temperature-indicating gauge.

One new model, with changes in several of the 1936 models which will be continued into the coming year, were announced for the 1937 Hotpoint electric range line, introduced by D. C. Marble, head of the range division.

The new Hotpoint range will be an all-porcelain model with four surface heating units, and will retail at around \$160. New features for the range line this year include flat coils, combination grid and broiler, wire mesh basket and time chime, and a clock to aid the user in regulating timing on electrical appliances.

Hotpoint's Dorian model, of which according to Mr. Marble, more than 30,000 were sold during the past year, will again retail for \$99.75, but in 1937 will also be available in porcelain at \$109.75. The Belmont model is being redesigned but will sell at a slightly lower price than in 1936.

The Edison General Electric Appliance Co. will spend close to \$1,000,000 on advertising its 1937 expenditures, according to plans outlined by W. A. Grove, advertising and sales promotion manager.

National magazines will be used, and

the budget for cooperative newspaper advertising has been increased. Dealers will be supplied radio transcriptions, direct mailing pieces, sales literature, and complete plans for utility employee sales campaigns.

Hotpoint in 1937 will experiment with company-controlled advertising in a number of metropolitan centers. Under this system, advertising allowances will not be given to dealers, and the company will place the advertising. The management is trying the plan to see if greater effectiveness through more timely and better planned advertising will not result.

Magazine copy will be divided into four campaigns devoted to electric cookery, the Calrod speed cookery feature of the Hotpoint range, refrigeration, and ensemble kitchen. Full-color advertising will be used in the kitchen ensemble insertions. Spreads and full pages will be used in the magazine campaign.

A series of five sales campaigns has been prepared for utility employees. In such campaigns, the utilities will provide bonuses and other awards for outstanding sales performance on Hotpoint products.

The company has made ready a new series of electrical transcriptions, similar to those used by dealers and utilities on an extensive scale this past year. Hotpoint pays the production cost, the retailer the time cost.

### Inspection of All Kelvinator Equipment In Use, Leading to Modernization or Replacement, Is Winter Sales Plan

DETROIT—A user "good will" campaign to provide for the inspection of Kelvinator household electric refrigerators and commercial equipment in all parts of the United States, highlights the winter promotion program planned by Kelvinator Corp., relates H. W. Burritt, vice president in charge of sales.

Dealer service organizations will be urged to contact old customers and offer to inspect their refrigerators or other equipment, and report adjustments needed to insure more efficient operation or to bring equipment entirely up to date.

Launched on the principle that the manufacturer's responsibility remains as long as his products remain in use, the campaign will have two special functions, according to Mr. Burritt:

"This inspection work by dealer service men will provide employment for a large number of men during the winter, when the demands on their time are less than during the summer. They can be a useful adjunct to the sales department, providing leads for new sales, and selling accessories to owners of old equipment who desire to equip their appliances with modernized accessories.

"In the case of commercial equipment," he added, "the service men may replace many pieces of equipment with newer improved models."

Good will engendered for both the manufacturer and dealers was cited by Mr. Burritt as the third point which will increase the value of the winter activity.

### Demonstration Coach Equipped with 40 Farm Appliances Used by Ohio Utility

CANTON, Ohio—Ohio Power Co. is using a giant trailer coach equipped with 40 electrical appliances that may be used on the farm, to promote dealers sales in rural localities near here.

With a salaried salesman in charge, the coach has made a circuit of small town county fairs, carrying a refrigerator, range, water heater, vacuum cleaner, a miniature air conditioning unit, smaller household electrical appliances, and equipment for farm use which includes everything from a milking machine to a fly electrocutor.

At four county fairs at which stops were made, 18,367 adults passed through the coach and approximately 1,400 prospects for various appliances and equipment were obtained. No effort at selling equipment direct from the coach is made, but all appliances are displayed in operation.

Visitors to the coach are given a postcard which contains a list of the popular applications of electricity on the farm, and asked to check those in which they are interested. Prospect names secured are distributed to the dealers on a fair and equal basis, coach attendants claim.

Before the trailer is taken to a county fair, descriptive articles and cuts of the coach are sent to the local newspaper. Manufacturers' literature on appliances shown, and that of other manufacturers with products of the same type, is handed out to visitors.

When dealers prefer to supply literature bearing their names, the coach salesman distributes this in place of the material issued directly by the manufacturer. Bulletins by G-E and Westinghouse are distributed.

### Service Leads Result In 61 Appliance Sales

LITTLE ROCK, Ark.—How service men can get into the game and boost appliance sales is shown by the work of Service Manager W. F. "Tex" Lewis and the service crew of O'Bannon Brothers, General Electric distributor here.

Mr. Lewis took to the 8-Point Platform when it was introduced by General Electric, and proceeded to work up a program for the sales campaign which lasted till the end of October.

By frequent reminders to field men, by offering a \$10 prize to the leading vote-getter during the campaign, by informing his men of the additional \$10 prize offered by the service manager of the Arkansas Power & Light Co., and by shooting breezy, pithy little sales "pep talks" out to his men at regular intervals, Mr. Lewis got results.

Turned into statistics, the servicemen obtained leads resulting in the sale of 47 household refrigerators, 9 dishwashers and disposal units, 4 commercial installations, and one range.

### Two 6-Ft. Boxes Meet Need for 12-Ft. Unit

WICHITA, Kan.—Having a prospect who demanded a 12-cu. ft. refrigerator didn't stop John Jenner long. Mr. Jenner, president of Shelley Electric Co., here, sold the customer two 6-cu. ft. units instead.

John H. Boos, St. Louis Westinghouse Electric Supply Co., who reported this bit of strategy, claims that the customer has expressed nothing but satisfaction with this arrangement.

**FLASH!**  
Heat Wave Predicted!  
Prospective Purchasers of  
Beer Cooling Units Advised  
to Take All Precautions!



Of course, we don't mean that this will happen tomorrow or the day after—but some day next year this will be a common story and there will be a scamper to install Temprite.

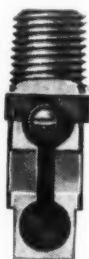
But why wait for grilling heat to sell Temprite? Customers demand a perfect glass of beer in December as well as June—so get busy now and sell a 365 day-per-year Temprite Cooling System which always serves beer at exactly the right temperature—sparkling, appetizing, with correct depth of collar and as the brewer made it.



Thus you protect your customer against the hazards of weather, for all kinds of weather look alike to Temprite.

**TEMPRITE PRODUCTS CORPORATION**  
1349 EAST MILWAUKEE AVE. - DETROIT, MICHIGAN  
ORIGINATORS OF INSTANTANEOUS LIQUID COOLING DEVICES

### 20 QUALITY FEATURES



(No. 20)

Servel's oil return check valve returns oil to the sealed crankcase, but prevents reverse flow and consequent "oil slugging"

## QUALITY DOES COUNT!

The twenty quality points\* which have been presented in these pages during the past year are vitally important both to the user and to the seller . . . These features are the source of dependable service and permanent satisfaction for the user—of repeat sales and expanding acceptance for the selling organization . . . Today, more than ever before, the man who sells commercial refrigeration or air conditioning must look to his satisfied customers for support, if he is to build greater volume in the coming years.

\*These features are merely samples of the scores of important refinements embodied in Servel products. If you are interested in the Servel "quality story" and have missed any of this series of advertisements, reprints will be forwarded on request.

## SERVEL

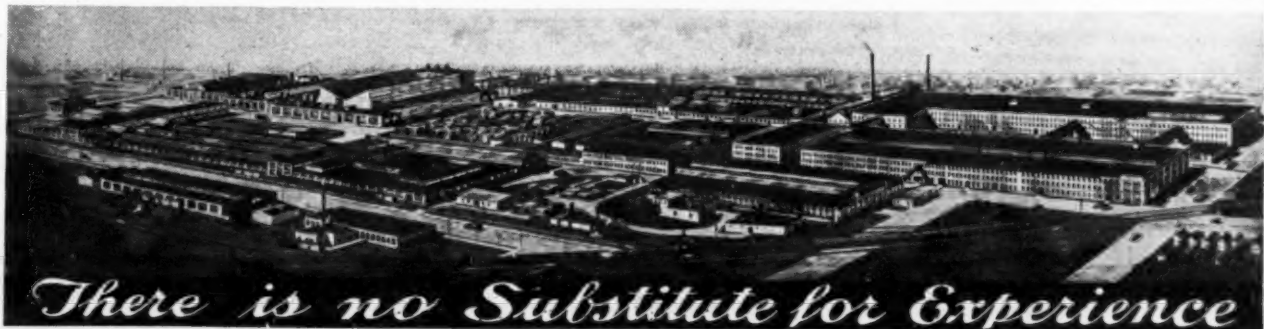
### REFRIGERATION AND AIR CONDITIONING

SERVEL, INC.

EVANSVILLE, IND.

Electric Refrigeration and Air Conditioning Division

This modern 33-acre plant is the home of Servel Electric Refrigeration and the world-famous Servel Electrolux the Gas Refrigerator



*There is no Substitute for Experience*



## Department Stores

### Aggressive Appliance Promotion By Dept. Stores Halted by Low Mark-Ups, Clinic Hears

CLEVELAND — Department stores may offer the greatest and fastest method of distributing major electrical appliances, but departmental managers will never be induced to promote them aggressively until mark-ups are raised sufficiently to enable their stores to operate their appliance departments at a profit, J. D. Chambers of Bry-Block Co., Memphis, Tenn., told the fifth annual General Electric department store merchandising clinic here Dec. 3.

Mr. Chambers was unable to attend the clinic because of illness, and his paper was read to department store men by L. G. Wesselmann of the Bailey Co., Cleveland.

"There are 5,600 department stores in the United States, doing a business of over four billion dollars, on an average per store of over seven million dollars," Mr. Chambers' paper read. "It is estimated that these stores had over two billion customers visit them last year.

#### Visit Stores 16 Times

"On the basis of total population of the United States, each person in the United States visits a department store at least 16 times—eliminate minors and, of course, the ratio would be greatly increased. It is hard to imagine the tremendous contact possibilities of these 5,600 stores with 16 times the population of this country milling through their aisles day in and day out, week in and week out throughout the year.

"There are over twenty six million department store active accounts. Think of the possibilities of these accounts which can be worked by direct mail—free enclosures can be placed in the statements at the beginning of every month—it is an active list of customers that can be contacted over the telephone, and there are numerous other ways of working these accounts so as to get over the large appliance sales talk.

#### Excellent Locations

"Department stores, as a rule, occupy excellent locations in the center of business activity. Consequently, display windows bring attention which cannot be had by smaller specialty stores, most of which are outside the 75% to 100% business location.

"Department stores are intensively organized under concentrated executive management with merchandise specialists, promotion specialists, advertising specialists and consequently can, if sold on the idea that large electrical appliances, particularly refrigerators, are a distinct benefit to them as a merchandise line, put over an outstanding job.

"I know of no other merchandising organization as well set to put over in an outstanding manner any line of merchandise bought by the house-

wife as department stores. Proof of this lies in the fact that most of the larger manufacturers of household appliances have been spending more of their time lately in building up their department store sales.

"But why is it that the average department store manager cools off so rapidly to suggestions for the intensive promotion and sale of these major appliances? The answer, to my mind, lies in the fact that at the end of the fiscal year invariably the net profit results are nil and it is reasonable, of course, to suppose that unless a satisfactory net profit is produced by the major appliance departments, the turnover on this type of merchandise is going to be comparatively slow as far as the department store is concerned.

#### Administrative and Occupancy Expenses

"I am convinced that it is not the fault of the average department store that we do not make a profit. It must be recognized in dealing with department stores that administrative and occupancy expenses are inevitable. In 1935 the average administrative percentage to sales of over 560 department stores amounted to 6.4% of the sales. The average total occupancy expense amounted to 5.2%. These figures are on record at the National Retail Dry Goods Association.

"With improved conditions and better business, of course, this average should come down slightly, but in the meantime, these percentages have to be reckoned with. The above figures total 11.6%. Total publicity should not cost over 5%; buying costs 2 1/2%.

"To maintain an enthusiastic force of salesmen, they must be paid 10%, especially those stores that have an outside selling staff who have to bear the expense of transportation, calling on their prospects.

"Two percent is a fair override to be paid the sales manager of the appliance department. Delivery expense of 2%, and general selling expense of 1 1/2%, added to the above, give us an operating expense of 34.6%.

#### 35.3% Mark-In

"Our mark-in, after taking into consideration trade-ins, amounts to 35.3%. Take from this, mark-downs of 1.9%, workroom expense of 1.6% and allow cash discounts of .4%, and you have a maintained gross profit of 32.9%—or a net less of 1.7% on a refrigerator operation. These figures are for the first six months operation of 1936. A close analysis of the operation reveals the fact that an initial mark-on of 35.3% is not sufficient to enable the department store to come anyway near a net profit.

"Contrast this with the radio operation for the same period. This department showed an operating net

profit of 5.6%, but the radio department got an average mark-on of 44.73%.

"I think most department store men will be in accord that the income from finance charges is a banking proposition, and cannot be considered in the departmental figures.

"The stores in this report that show an occupancy of 2.2% are to be complimented. The salesman's commission of 8.2% I believe, is impossible to secure if an efficient outside selling staff is to be maintained, but on the basis of the total operating expense contained in that report the loss would be 1.6% instead of an erroneous profit of 4.8%.

"If the manufacturers of major electrical appliances can bring about an average initial mark up of 45% for department stores, I am convinced that there is not an executive in any of these department stores who will not get behind the major appliance department and push it in the hardest possible manner," the paper concluded.

### Wolff Describes How Department Stores Can Help Selling Outside Store

CLEVELAND — What department store executives can do inside the store to help make the job easier for men who are selling on the outside was outlined to the G-E Merchandising Clinic, held here recently, by W. B. Wolff, divisional merchandise manager of M. O'Neil Co., Akron, Ohio, in an address titled "Selling Outside the Store."

For a department store to succeed in outside selling, it is important and essential that the management of the store be young enough mentally to give the new department the help it needs to get started, Mr. Wolff said.

"The store management can't be 'ready-to-wear minded,' if outside selling by the appliance department is to be successful," he emphasized. "The executives whose support is all-important must be young enough mentally to understand the problems of the new operation, and be ready to lend it a helping hand in getting under way."

#### Help for Outside Salesmen

Some of the things the store can do inside to help sales of appliances on the outside, Mr. Wolff said, are:

1. The allotment to the appliance department of four or five "traffic" positions on the floor—spots in which the merchandise will be noticed by customers, and from which prospects may be obtained. Judicious location of these spots can do a great deal to cut down the task of outside cold canvassing.

Regarding the manning of these spot displays, Mr. Wolff said his store had found it advisable to rotate the salesmen, giving them a half day in the display and a half day outside the store.

Supervisors should be on hand, he added, seeing that the salesmen keep on top of their jobs, and assisting them in closing.

#### Morning Sales Meetings

2. Morning meetings of the appliance sales force are desirable, if the department is to operate at maximum efficiency.

3. Consistent education of the appliance salesmen, first on their lines of merchandise, and second on the background, reputation, and standing of the store itself, and its place in the community.

4. Planned advertising. This applies both to newspaper advertising and window displays, Mr. Wolff said. Stores which are "ready-to-wear minded" are sometimes hard to sell on the idea of mapping out an advertising campaign covering appliances alone.

The task of the department manager, he added, is to sell the store management not only on an advertising campaign definitely planned and scheduled for the most opportune times during the year, but also on the allocation of display windows at prominent positions during the thick of the selling season.

#### Effect of Sales Contests

5. Sales contests, run regularly, are an excellent means of keeping the department's personnel on its toes and looking for business. A steady diet of contests, Mr. Wolff said, will prove its worth in additional sales volume, besides keeping the men busy and in friendly competition with one another.

6. Adequate supervision of salesmen is another requisite of successful outside selling, Mr. Wolff stated. The day by day work of those out in the field must be carefully checked, and the errors curbed before they gain headway.

One of the supervisor's most important tasks, he added, is to see that the salesmen know themselves, their capabilities and weaknesses, and how to build up the one and diminish the other. Salesmen must know what they're working toward before they can do their best work.

## McGivena Classifies Customers Of Today into 3 Groups And Analyzes Them

CLEVELAND — Department store men, and other business men as well, had better realize that the customer of today differs in many important respects from the customer of five years ago, L. E. McGivena, advertising manager of the *New York Daily News*, said in giving "Some Aspects of the Present Day Customer" to the recent G-E Merchandising Clinic here.

"After five years of customer scarcity, business men today are face to face with a scarcity of merchandise," Mr. McGivena said. "The public has started to buy again, but it's a different public from the one of five years ago."

Generally speaking, Mr. McGivena said, today's customer falls into one of three classes:

#### The Permanently Cautious

1. The permanently cautious. These customers are of the "burned child fears the fire" variety, and are always a drag on business. They existed before the depression, and their experience with it has convinced them that they were right the first time.

These customers are in the conservative class, Mr. McGivena said. They are the type of people who put off buying anything until they can no longer go without it. Careful buyers, this class sees that it has the cash first.

Some members of this class are in business for themselves; they are the ones who lag behind the pack in making changes. Experience of the lean years has soured them on things in general. "A minus type, definitely," Mr. McGivena termed them.

#### Skeptical Optimists

2. The skeptical optimists. Most women, said Mr. McGivena, are in this second class. They came through the depression, they didn't lose their homes, their husbands kept their jobs—in short, things are not as bad as they thought they'd be.

"Now, these people think, we can go ahead and live better," Mr. McGivena said. "The husband didn't lose his job, even if his wages were cut down. Small buyers during the depression, this class of customer is beginning to step out and buy more heavily now. As soon as they feel a bit secure, up goes their living standard."

#### Rush for Watches and Waves

As an example of this, Mr. McGivena cited the recent rush for wrist watches and permanent waves in the New England mill districts, as soon as the working girls there, some of whom were getting only \$12 a week, felt their jobs would hold for a while.

"A lot of women, untouched by the depression, think now that the whole thing was exaggerated. Their families have recovered from the shock of the depression; and anyway, they're willing to believe the whole thing never really happened."

#### Effect of the Young

3. The young. To most of these, the depression was just something they read about. The memory of the World War is just something they learned in history class—they don't know what it all means.

This class, said Mr. McGivena, is the great saving factor in business and sales of the future. It is a class with boundless expectations, unplumbed buying power, and with minds unblighted by wars or depressions. To them, it didn't even happen.

"The young will be the great saving factor in the business of the future," Mr. McGivena said.

#### Administration Has Public Confidence

Another prevailing condition which business men must realize, Mr. McGivena said, is that business men are no longer the oracles they were before the depression. After the whipping of the last five years, the public no longer has confidence in business, he stated. Interviews with business leaders no longer get page space in newspapers.

Instead, he declared, all the public's confidence is in the Administration in Washington. Government has done something for the people, when business failed—and the public isn't forgetting it. As Norman Thomas said, it's like the little boy who sees the boogeyman—he runs to his father and cries, "Daddy, save me!"

What hurt business most of all with the public, however, was its bitter opposition to several administration moves which, in the eyes of the man on the street, were intended to help him, Mr. McGivena declared.

As example he cited: The NRA. To the worker, it meant shorter hours, and more pay. No matter what else it might have done badly, that's what it means to the laborer. Business opposed it.

The AAA. To the farmer, it means stable prices and some quick cash.

The SEC meant security in buying stocks and bonds; the banking laws meant the worker's money was protected; and Social Security means a security to the working man that he's never been able to feel before.

#### Business Lost Public Confidence

"Yet," said Mr. McGivena, "business opposed all these moves. It was a very unwise thing to fight these reforms so bitterly, because the public got the idea that business was opposed to things intended for its good."

"And so business has lost the confidence of the public, and the administration has gained it."

At that, Mr. McGivena said, several of the administration's moves were good, whether business liked them or not.

"The NRA," he said, "did two important things—it stabilized prices and restricted the actions of the unscrupulous minority. The NRA, or something like it, will come back, because business wants it back. Recent actions in the oil and textile industries are examples of what may be expected to follow."

#### Effect of Social Security

"Social Security will make working people potential buyers all their lives, to say nothing of eliminating the need for public charity. That is something which has never happened before. There may be some objections to the Social Security Act as it now stands, but the aims of the act are right in theory."

Changes in the interests of the people have been made known to the *Daily News*, Mr. McGivena said, through several of the bureaus which it maintains for public service.

The *Daily News* Information Bureau, he said, has experienced a great wave of public interest in public affairs during the last three years. People are studying more history and economics, and want to know more about what's going on in Washington.

Secondly, he said, there has been an immense pickup in travel. Everybody seems to be going somewhere, if inquiries at the Information Bureau mean anything, and they're going by train, bus, trailer, automobile, and ship.

In the third place, parties are picking up again. "The Correct Thing," a service recently inaugurated by the newspaper, gets more than 70,000 letters a year, Mr. McGivena said. These letters are an indicator as to what the public is thinking about.

Recently a great number of letters have inquired about how to give certain types of parties, how to act on shipboard, on trains, etc. Parties and travel mean money is being spent, he declared.

#### Dissatisfaction with Housing

Fourth, letters to the paper indicate a vast dissatisfaction with housing conditions in general. Great interest is being manifested in the "New American Home," in air conditioning for homes, and other improvements.

"Women are very much dissatisfied with their present kitchens," Mr. McGivena said. "There is a vast potential market for all types of kitchen equipment, all sorts of labor-saving conveniences."

Today, the speaker said, demonstration is more important to sales than ever before. At recent expositions, crowds have filled home furnishing and appliance booths. With rapidly moving masses of people like this, the need for dramatization becomes more important, Mr. McGivena declared. Signs, as well as words, must tell the story to the prospect as he passes.

Credit conditions are definitely improved, the speaker stated. Installment selling is still the biggest factor in the sale of the more expensive appliances today.

A change in advertising theories is apparent in business today, even to the smaller stores, Mr. McGivena said. The trend is away from trade and technicalities, and toward a more sympathetic view of the customer and his wants and needs, he added.

"Another important thing for merchandisers to realize is that there is no longer a definite class of market. The people best able to pay are not always the first to buy. Manufacturers of oil burners found this out. Most oil burners in use today are in the homes of working men—and not, as might be supposed, those with more money and the ability to buy."

"People who hire men to fire their furnaces care little about the convenience of an oil burner—to the man who has to get up and fire the furnace himself, however, that convenience means something."

"That same line of thinking applies not only to oil burners, but to all types of merchandise. Get the customer's viewpoint into your selling, and you'll sell more."



**THEY ALL USE SYLPHON**

It is significant, that, for crankshaft seals, packless glands, thermostat members and at many other vital points in machine and instrument design—the leaders throughout the industry, specify Sylphon Bellows.

They know Sylphon is the best bellows buy. They know it will contribute most to the long trouble-free service of their products. They know this seamless, jointless metal diaphragm, originated and pioneered by Fulton Sylphon 35 years ago, has been the subject of more research and development in manufacture and application, than any other product of its kind.

Avail yourself of this plus value that costs you nothing... that will pay you well in product acceptance and good will.

**FULTON SYLPHON CO.**  
KNOXVILLE, TENN., U.S.A.



## Sales Methods

### Sales Coach Solves Rural Load Problem For Pennsylvania Utility

ALTOONA, Pa.—Exhausting all conventional means of developing its rural load, Penn Central Light & Power Co. finally solved this difficulty by using an all-electric kitchen on wheels, according to R. M. Phelps, of Penn Central.

Last year the utility purchased a General Electric Sales Pilot Coach, and converted it into the "Penn Central All-Electric Kitchen," displaying within it two refrigerators, two standard ranges, and one 30-gal. water heater.

The trailer was painted white, attached to an all-white coupe, placed under the supervision of one of the company's crack salesmen, and then sent to tour the outlying sections of the utility's territory. As a result, appliance sales in these sections increased immediately and to a surprising degree, Mr. Phelps claims.

Penn Central does not deal in small appliances, so display and shelf space was utilized at each stop for cooperative display of small appliances and radios on behalf of some local dealer.

#### Itinerary Carefully Planned

A carefully organized itinerary was planned for the sales coach, providing for the initial display of the unit in front of the ten district offices in small towns of 8,000 population or less. After the coach had been displayed for two days in front of a district office, it was scheduled for display in the small hamlets and villages directly under the supervision of that particular office.

The first reaction to this streamlined trailer parked in the middle of a village, Mr. Phelps explained, is simply curiosity. Villagers want to find out what it is, why it is there, and what is inside it. Thus all the difficulties of sales approach are automatically eliminated through this single element of created curiosity, and the salesman in charge of the coach stated that 60% of total sales have resulted from this one factor.

#### Sales Coach Open Evenings

This traveling kitchen is always kept open till late in the evening, affording whole families the opportunity of inspecting it together.

Based on results accomplished, says Mr. Phelps, there can be no doubt that this is an effective method of developing a sparsely settled district. Numerous experiences have proved that the advent of the sales coach personalizes the approach, breaks down original resistance, and brings the store to the door. Working in small communities, the coach also develops what might be termed "chain selling"—that is, one purchaser tells a friend about the appliance

purchased; this friend then tells another friend, etc.

One of the most outstanding results of the use of the coach is the number of prospects developed through the coach's visit and closed within 30 days after the coach has left that vicinity. This follow-up business has often doubled or tripled the ordinary sales volume of local merchants, Mr. Phelps claims.

Gross profit of Penn Central's portable all-electric kitchen for a four-month period of operation last year amounted to \$4,266.47.

Mr. Phelps warns other utilities not to adopt a similar program, however, unless that utility has a salesman who is willing to work as many as 18 hours a day when occasion demands, and who will devote his entire enthusiasm to this project to the exclusion of all other interests. The company should be willing to pay such a man a reasonably higher salary, he maintained, in return for the salesman's unlimited application to the job of making the coach produce.

"Without that type of sales attendance," Mr. Phelps concludes, "the investment is futile and results at best will be only mediocre, for the coach is nothing but a novel, effective means of applying super-salesmanship."

### G-E Meat Booklet to Be Distributed by Movies Showing Crosby Film

CLEVELAND—Movie-goers who see "Pennies from Heaven," Columbia Pictures Corp.'s \$2,000,000 production starring Bing Crosby and Madge Evans, will be urged by theater program blurbs, lobby displays, and show advertising to ask for a copy of General Electric's Dictionary of Food booklet titled "How to Buy Meats for Home Consumption."

Through a special tie-in arrangement made by the specialty appliance sales division of the General Electric Co., the movie is to be the central link in promoting the G-E refrigerator Thrift Unit, and in getting prospect names for General Electric dealers and distributors throughout the country.

Columbia Picture Corp. will distribute folders for the General Electric dealers, containing a request form on which the holder can fill in his name and address and obtain a copy of the booklet. Boxes for the forms will be placed in the theater lobby where the picture is shown. Blanks deposited will be collected by the dealer who ties in with the promotion, and given to his salesman for prospect leads.

The dealer's part in the tie-in is to include a card advertising the show and the Thrift Unit, in his window display. He also will feature the name of the show in his advertising, and will assign a salesman to be in the theater lobby while the show is being run to see that filled in blanks are placed in the box.

Slogan for the campaign "Pennies From Heaven are the Pennies You Save" can readily be worked into G-E selling talks and promotions.

### Dealer Makes Delivery at Night to Get Sale

HAASWOOD, La.—Aubrey Haas, owner of the general store in this little town of 17 inhabitants, sold nine refrigerators and two washing machines within the first month after he had been established as a Norge dealer, according to George H. Lehltner, president of Norge Products Co., New Orleans Norge distributor.

Mr. Haas does not confine his efforts to his store, but covers the surrounding territory within a radius of about 40 miles. Typical of his energetic salesmanship is this incident reported by Mr. Lehltner.

"Mr. Haas had been working on a prospect who owned an antiquated mechanical refrigerator. Finally the prospect's decrepit machine simply expired at about 6 p. m. one Sunday. The prospect called Mr. Haas and told him that he would purchase a model P-1126 Norge if it was delivered before midnight."

"Mr. Haas immediately called me over long distance telephone, and learned that I was boating on the lake and not expected to return until late that evening. Jumping into his truck, he drove to the dock, and waited for me. As soon as I docked the boat, he hustled me off, and at 11 o'clock that night he loaded the refrigerator on his truck, and set off on the 38-mile delivery."

### Low-Cost Advertising Used Effectively by Norge Dealer

EL DORADO, Kan.—Stretching a small advertising budget, made up of 5% of his gross sales profits, to cover a multitude of activities has helped Fred C. Smith, owner of the Norge Store here, to sell 140 electric refrigerators, and a total of 300 appliances, this year.

When high school boys are getting up basketball programs, Mr. Smith contributes \$2.50; if promoters for town softball leagues sell space for programs, the Norge Store is represented. One \$5 bill may go into an advertisement on 1,500 church napkins imprinted with merchants' names. When the local theater sponsors a dancing school course for girls, this dealer contributes his share.

"In just a few years, these dancing pupils will be outfitting homes of their own," says Mr. Smith. "Then they will remember to deal with merchants who have been friendly."

Another use for advertising money is to run an insertion in the local paper, after a commercial installation has been made, telling the effect which the unit has, or will have, on the concern's business.

Placing small advertising funds in the correct places, determines whether the money is wisely or foolishly spent, Mr. Smith believes.

Committeemen or solicitors who approach him are told: "I'm glad you got in while the budget will stand the expenditure. I feel certain that I will get \$5 worth of good from the advertising."

This Norge dealer claims that he has never yet placed an advertisement with a group without having someone drop into his store later with some prospect leads.

### Charted Sales Plan Helps M. G. Stokum Rise from Salesman to Dealer in Three-Year Period

SAN ANTONIO, Tex.—M. G. Stokum, of Sebastian-Stokum, Inc., local Kelvinator dealer, attributes his rapid rise from salesman to dealer, to definite and well-laid sales plans, closely coordinated and controlled by a complete and systematic sales graph.

Three years ago, Mr. Stokum joined the S. H. Cohen Co., Houston, Tex., as sales manager and active salesman. Within three months his sales force led the entire city in sales volume, establishing an average unit sales value of \$237 per unit.

The Cohen Co. sold 600 units that year, representing a total sales volume of approximately \$140,000. And Houston was considered poor sales territory at that time.

Last year Mr. Stokum joined Edward D. Muir Co., Kelvinator outlet in San Antonio, and in six months sold nearly three times as many units as had been sold in the entire previous year.

Today, Mr. Stokum is a dealer himself, and is continuing his excellent record.

The charted sales plan which Mr. Stokum employs, not only enables him to discover shortcomings and weak spots in his organization, but also makes it possible for him to foresee and prevent the periodic slumps of the average salesman.

Mr. Stokum's whole plan depends upon the work of individual salesmen in the field. The graph simply supports and sustains this individual effort, and shows when a salesman is falling down in volume of calls or sales.

"If a salesman will make a certain number of calls each day, the law of averages will automatically take care of him," Mr. Stokum maintains.

"But the average salesman," he says, "is far too easily satisfied. If he makes one sale on Monday, he assumes that his week's work is done, and consequently makes no further effort."

For the benefit of his salesmen as well as the company, Mr. Stokum imposes certain strict rules. Each salesman must average a definite number of canvass calls each morning, and a certain number of call-backs each afternoon and evening.

Salesmen receive a bonus for each sale, but the bonus is paid three months after the sale is completed, providing the salesman has lived up to all of the regulations. This policy, Mr. Stokum believes, keeps good men in the selling organization, and rapidly eliminates those who are not willing to cooperate.

### Westinghouse Gives Tips On Kitchen Planning

MANSFIELD—The entire procedure of setting up a kitchen planning department, methods of sales procedure, and rules for arranging group equipment and planning new kitchens are explained in the new 30-page "Westinghouse All-Electric Kitchen Guide," issued for dealer use by Westinghouse Electric & Mfg. Co.

Material is divided into three separate sections in which the dealer is told (1) how to set up his work to take on the business; (2) how to sell kitchens, with a presentation complete from the approach to the signed order; and (3) basic idea behind Westinghouse kitchen planning.

## PART OF YOUR NEXT SALE IS ALREADY MADE

WITH  
G-E MOTORS  
ON YOUR  
REFRIGERATORS



WHEN your prospects know that the domestic electric refrigerators you sell are equipped with G-E motors, they have confidence that the electric equipment is dependable, for they know General Electric's high standards of quality. The recognized reputation of the refrigerators, plus this confidence in G-E motors, makes the entire unit easier to sell and shortens the time required to close a sale.

Thus you have more time to educate the public to the advantages of using electric refrigeration, to demonstrate to prospects the services modern household electric appliances render. With this additional time for showing how truly economical electric refrigerators are, and how effectively they preserve food, you can prepare the way for increased sales. General Electric, Schenectady, New York.



#### DO YOU KNOW

to how great an extent General Electric has aided in developing the market for domestic electric appliances? From 1923 to 1930—seven vital years in the growth of the industry—General Electric helped create a demand for appliances by telling the public of their benefits. During that period the sale of domestic electric refrigerators was one hundred times the combined sales of all previous years.

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McCORD RADIATOR & MFG. CO.  
DETROIT, MICH.



# Air Conditioning Made Easy

By F. O. JORDAN

## Hookups Used in Installing Steam Heating Systems

SECTION NO. 7  
Heating (Continued)

### Miscellaneous Typical Connections

In all of the boiler connections which have been discussed, gravity has played the major role in returning the condensate to the boiler. Hence, it was necessary that all radiators be kept some distance above the boiler water level, depending upon the boiler steam pressure to be carried, the pressure drops through the system, and the type of return connections used.

However, in the case of the various return pump systems which will be discussed, the position of the radiator is independent of the boiler water level.

#### Gravity Condensate Return

In Fig. 9, the condensate returns by gravity to the condensate receiver. When sufficient condensate has returned, a float switch starts the condensate return pump, which returns the condensate to the boiler.

The check valve in the pump discharge line prevents a reversal of flow, due to boiler pressure during the off-cycle of the pump. Air which returns to the receiver departs through the open vent.

The receiver may be placed in any position relative to the pump so long as its height above the pump is sufficient to allow the condensate to flow from the receiver by gravity. The

pump and receiver may be located in any position relative to the boiler.

Radiators must be located above the receiver at a sufficient height to allow the condensate to return to the receiver by gravity.

This type of system is not critical, nor difficult to install so that it will function properly as the use of the condensate return pump insures the positive return of the condensate to the boiler, while the distribution system requires no extreme accuracy of balancing. Neither is this system expensive, nor is it complicated to the extent of requiring an attendant or operator.

#### Boiler and Pump Connections

Fig. 10 shows the boiler and pump connections for the vacuum system. With this system, the vacuum pump unit (consisting of receiver, and condensate and air pumps) pulls the condensate and air from the return system, discharging the air from the system and delivering the condensate to the boiler.

Operating under the control of a vacuum controller switch, the vacuum pump maintains a predetermined vacuum (usually about 6 inches of mercury) on the return system. When the condensate in the receiver has reached a predetermined level, a float switch operates the condensate pump to return the condensate to the boiler. A vacuum breaker is provided so that the vacuum will not become too great when the pump unit is operated for long periods due to heavy condensate loads.

#### Air-Tight Return System

With this system, radiators may be located below the level of the receiver, and step-ups may be used in the return system where necessary, if proper lift pickets are provided.

It is especially important that the entire return system be made air tight and that very positive traps be used at all return and drip connections, because of the vacuum to be maintained in the return system.

For this reason, and because of the cost of the required type of pump and controls, the vacuum system tends to be somewhat expensive, as compared to the condensate return pump system. Furthermore, the vacuum system tends to require more expert attendance, not only because of its more complex nature, but also because it is more susceptible to trouble, because of breaking of vacuum due to leaks or faulty traps, etc. However, if radiators must be located below the level of the receiver, or in case of systems covering a very large area, the vacuum system should be used.

There are many variations of the vacuum system, notably the "differential" high vacuum system. In this system, a constant pressure differential is maintained between the pressure in the steam system and in the return system, while the pressure is regulated automatically according to the outside temperature, lower pressures in the system being maintained, coincidental with higher outside temperatures. In case of light loads caused by mild weather, several inches of vacuum may be carried in the steam mains and radiators, while vacuums upward of 15 inches may be maintained in the returns.

Because of the low absolute pressures in the radiators, the radiator temperatures are comparatively low under such conditions so that the load is balanced with the radiator full on. Therefore, good temperature distribution may be obtained without danger of over-heating. With this type of system it is customary to install orifices at all radiator steam connections for the purpose of obtaining a more exactly balanced distribution of steam.

The connection shown by Fig. 11 may be used for up-feed steam risers where the runout is not over two stories high. This connection also may be used for vapor or vacuum return risers, or for hot water supply and return not over two stories high.

The connection shown by Fig. 12 is for the same usage as Fig. 11, except that it should be used for risers three stories high or over.

Shown in Fig. 13 is the connection

#### Risers with Long Runouts

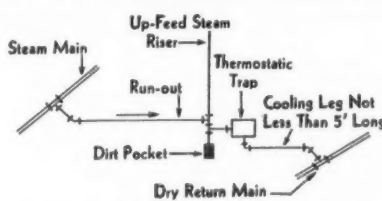


Fig. 13—Connections for up-feed steam riser with runout over 6 feet long.

#### Up-Feed Riser with Runout over Six Ft.

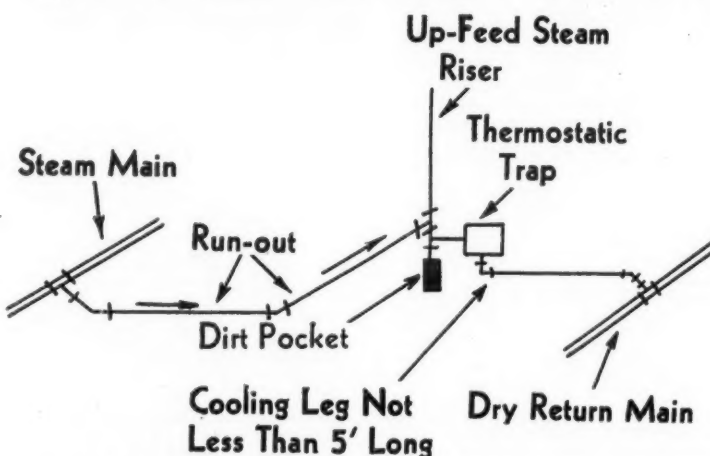


Fig. 14—Same setup as Fig. 13, except it is used for risers over 2 stories.

for up-feed steam risers not over two stories high where runout is over 6 feet long or where it is necessary to drip the main.

The connection shown by Fig. 14 is for the same usage as Fig. 13, except that it should be used where the riser is three stories high or over.

The connection shown in Fig. 15 is for down-feed steam risers, or for

#### Double Swing Connections

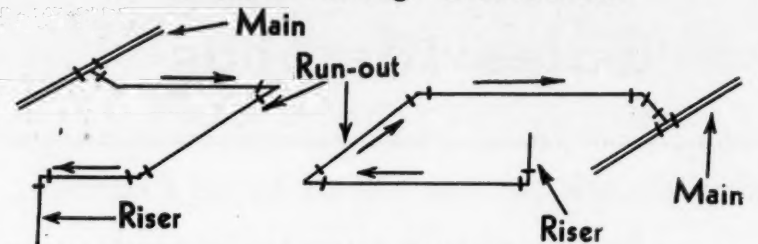


Fig. 17—Double-swing connections where both main and riser must be near the wall.

#### Drip Connections at End of Steam Mains

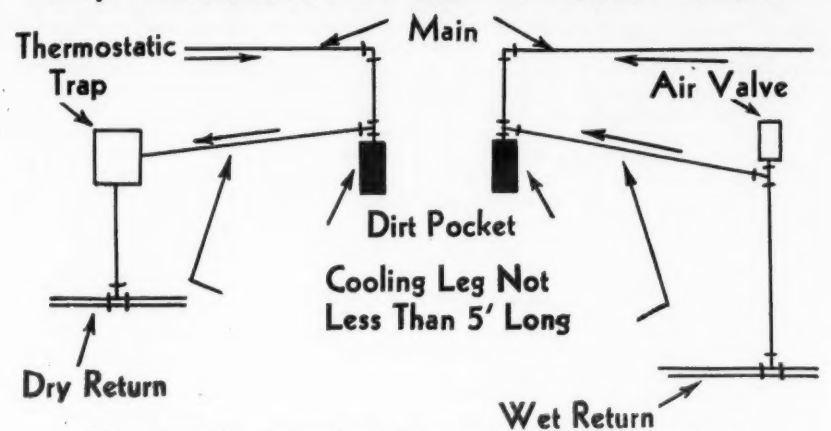


Fig. 18—Drip connections for vapor or vacuum systems.

hot water supply or return risers with overhead mains, where the riser is not over two stories high.

The connection shown by Fig. 16 is for the same usage as Fig. 15, except that it should be used where the riser is three stories high or over.

Connections shown by Fig. 17 are double swing connections which may be used where both the main and the riser must be near the wall, or where expansion is considerable.

Fig. 18 shows drip connections for use at the end of steam mains for vapor or vacuum systems which cannot drain through down-feed risers. The air valve shown for the wet return connection may be omitted if riser connections are as shown by Figs. 10 and 11.

### Carrier Honored on 25th Anniversary

NEWARK—Cables, telegrams and letters from scientific, governmental and business leaders throughout the world were received on Dec. 8 by Willis H. Carrier, chairman of the board of Carrier Corp., in commemoration of the twenty-fifth anniversary of his work in air conditioning. It was on Dec. 8, 1911, that Mr. Carrier read his report on rational psychrometric formulae on air conditioning before the American Society of Mechanical Engineers.

In recognition of the anniversary, Dr. Masao Kamo of Tokyo Imperial University cabled Mr. Carrier honorary membership in the Japanese Association of Refrigeration. Other messages came from Secretary of Commerce Roper, Secretary of Labor Perkins, Gov. Harold G. Hoffman and United States Senator A. Harry Moore of New Jersey; Robert A. Millikan of the California Institute of Technology, and Charles M. Schwab.

The Carrier sales organization, both domestic and foreign, presented him with \$2,159,760 worth of orders, the result of two months of sales activity.

### Baltimore Shoe Shop Opens Air Conditioned Branch

BALTIMORE—N. Hess' Sons, owner and operator of Baltimore's first air-conditioned shoe shop, is constructing a completely air-conditioned branch store which will be opened sometime early next year.

### SHELF-X

FLAT SURFACED EXPANDED STEEL SHEETS  
SHELVING ADDS "SALES APPEAL" TO REFRIGERATORS



Send for free sample of Shelf-X and make the sliding cup test!

Shelf-X shelving provides an important talking point for selling refrigerators. Because of its smooth flat surface Shelf-X permits the sliding of containers in any direction without tipping or spilling. And its attractive diamond design not only adds beauty to the refrigerator but also furnishes proper support for small as well as large objects.

Ideal for Air-Conditioning Screening

The large open area of Shelf-X assures free circulation of air; therefore it is as good for air-conditioning screening as it is for refrigerator shelving. See for yourself the many advantages of Shelf-X. Send for free sample and complete details. Address Department 21-ER.

Manufactured by:  
UNITED STATES GYPSUM COMPANY  
STEEL PRODUCTS DIVISION, 300 W. ADAMS ST., CHICAGO

### Diagrams of Return Pump Systems

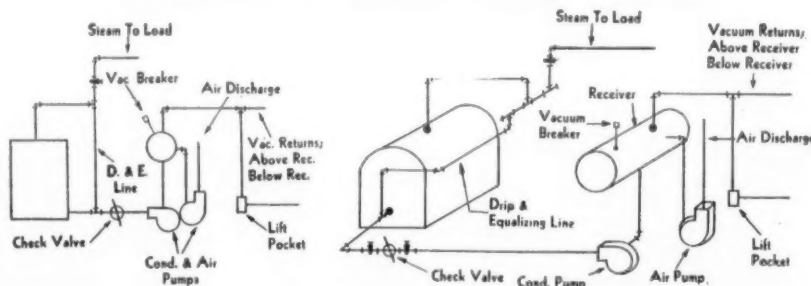


Fig. 9 shows hookup in which condensate drains by gravity to condensate receiver; from there it is pumped to boiler.

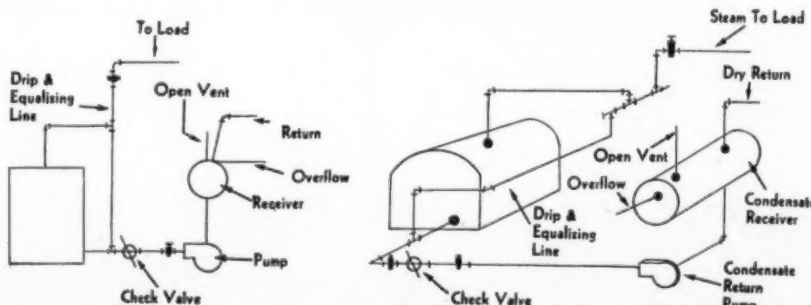


Fig. 10—Hookup for vacuum system.



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## Home Service

### Home Service Workers Discuss Ideas for Extending Activities into Better Homes & Kitchen Planning Fields

(Concluded from Page 2, Column 2)

bigger task which home service workers would soon be doing—selling better homes.

"You'll be selling homes instead of kitchens soon," was the prefacing peg upon which he discussed radial wiring systems, policies of the home bureau, and topics covering the work being done by his department. He told the group that where a few years ago a speculative builder did not install equipment, but left that to the purchaser of the house, today builders are gradually becoming merchandisers for electrical equipment.

Ruby Littlefield, of the G-E Bridgeport offices, who introduced the G-E laundry equipment line, said that in her opinion, home service work was the backbone of the sales department. Outlining selling points for the equipment she presented, Miss Littlefield commented:

"We do our laundry work in afternoon dresses today; the time when we used to wear rubber boots, rubber aprons and gloves when we did the family wash, is long since past."

How the *Woman's Home Companion* bases its editorial matter on the experiences of hundreds of housewives through its correspondent reader editors, and the recent laundry experiments made through this policy was explained by Gertrude Smith of the *Companion* staff.

The home service institute of the *Woman's Home Companion*, Miss Smith related, before preparing an article entitled "We borrow our neighbor's work," actually did the weekly wash of one of its reader housewives for three months.

Presentation of G-E traffic appliances by Louise Leslie, of the Bridgeport G-E offices, and a discussion on testing roasters and mixers given by Elizabeth Beveridge of *Woman's Home Companion*, ended the morning session.

#### Home Service Workers Gave Ideas for 1937 Promotion

The idea behind the design of new dealer display pieces which are included in the 1937 G-E merchandising program, came from the company's home service girls, A. L. Scaife, manager of the advertising and sales promotion division, told the conference.

Complaints from a headquarters home economist and from one in the field that home appliances are being displayed in cold unattractive settings, far removed from the true atmosphere of an attractive kitchen, led to the design of new display back drops and settings.

"We buy everything on the basis of two things—a reason, and an alibi," Mr. Scaife said. The "reason," he explained as being the need, and the "alibi," the urgency which the prospect invents in his mind before convincing himself that he should buy.

He then illustrated how this idea was carried out in the promotion pieces and advertising copy which G-E will use this year, and explained the national newspaper, magazine, and radio programs which General Electric will sponsor.

#### New Ranges and Dishwashers Are Demonstrated

Clara Dean of the General Electric headquarters home service division gave a demonstration of the 1937 range, stressing the points which the home service directors should bring in their talks before housewife prospects. Within one hour and a quarter, Miss Dean showed how eight loaves of

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THE RED BOOK

bread could be baked in the 18-inch range oven, and whisked three types of oven dinners in and out of ranges.

Food prepared by Miss Dean was then garnished by Adelaide Fellows, home service director of R. Cooper Jr., Inc., Chicago, who explained how garnishing is done as she worked.

Winding up the second day's conference, Carl Snyder, manager of the G-E home bureau, New York, explained that the plan behind the New American Home activity is to provide homes scientifically designed from the view point of providing the greatest possible convenience and better living standards, and yet designed so that the architect can quote a price which will not be subject to increase after the house is completed.

Program for the third and final day of the conference was built to give a complete picture of the operation of all types of home service departments—including distributor, utility, department store, radio cooking school, and home service work and its applications in women's magazines.

Director of home service for the W. H. Block & Co., Indianapolis, Rose Farrel discussed "Operating a home advisory bureau in a department store," and explained the different types of promotions which her department has used to increase store traffic. Illustrating the progress made, Miss Farrel told that her department now occupies space which is double that originally used.

#### Fern Snider Explains Plan Used in Kitchen Planning

Illustrative of how one utility's home service department intends to become active salesmen of planned kitchens, Miss Fern Snider, director of the Georgia Power Co., outlined the program recently drawn up for her department.

"We intend to have one man at the central offices who will be a key man for our kitchen planning activities. All the work on kitchens will go through his hands. We will send him to the various manufacturers to learn the methods, and when he returns, he will teach 20 girls who will then act as salesmen."

Whether or not the dealer or a salesman makes the contact call on a planned kitchen prospect, one of this group of home economists will be the person who goes to the prospect's home to see the about the possibilities of making a sale, Miss Snider explained.

These girls will do the actual measuring and contact the key man at the central office to get the plans drawn up, she added. It will be part of the girls' work to suggest a contractor to remodel or to build the kitchen.

The home service worker especially instructed in planned kitchen selling, will give her prospect a talk on the model kitchen with the idea that the prospect is to get her contractor lined up for action as soon as the plans are supplied. This method, the director believes, will eliminate the waste involved in drawing up plans for people who just want to look at pictures.

As promotion literature, the Georgia Power Co. plans to issue booklets picturing before and after kitchens.

#### Julia Kiene Describes Farm Market for Appliances

"Reevaluate your idea of a farm housewife," advised Julia Kiene of *Capper's Farmer* magazine, in opening her talk on "What the Farmer's Wife Wants to Know About Electricity."

"The farm wife is equipment-minded. She is a partner with her husband, and she is not afraid to buy if she needs new equipment. She probably won't buy on the instalment plan, instead she'll pay cash although she may have to borrow some of it with new crop income as security," Mrs. Kiene told her audience.

Speaking of the large existent market for selling electrical appliances in rural districts Mrs. Kiene estimated that there are approximately 3,000,000 farm homes of people in the \$600 to \$1,000 income class (\$600 in the farm income class is equivalent to \$1,600 in the city group) which are not electrified.

Quoting material from a survey which she recently conducted, Mrs. Kiene related the wants of the farm housewife in a district where rural lines are being installed for the first time, in this order: lights, washing machine, electric iron, electric refrigerator, small appliance, and stove.

"Remember that the farm wife is equipment-minded and she's not so interested in gadgets or exterior design as is the city dwelling appliance purchaser," Mrs. Kiene said. "When she comes to buy an electric refrigerator, she won't care who the designer is, she will be more interested in the lubricated compressor, because she's worked with farm equipment and has come to understand these terms."

"I plead with you do not sell the farm housewife appliances that are too small. Even if she says that she can't afford a large capacity refrigerator, insist that she buy one, if you wish to have a satisfied customer after the refrigerator is installed a few months."

One way of working around the "can't afford it" objection, suggested by Mrs. Kiene, is to point out to the farmer that by storing milk, butter and eggs in her refrigerator and selling them from her own house rather than taking them into the market, she can increase her profits considerably.

"The farm housewife is a buyer of performance, and she is going to expect performance in the electrical equipment which she buys," she added. Mrs. Kiene concluded her talk with a plea that the manufacturers prepare literature and selling talks that will help the farm woman buy intelligently.

#### Conductor of Radio School Gives Hints on Market

Presenting another aspect of home service work in its indirect influence on selling electrical equipment, was the talk given by Aunt Susan of Station WKY, Oklahoma City, Okla., who told about her radio cooking schools.

Setting herself up as a cross section of the audience which the home service worker tries to reach, the radio school conductor brought up points which her audience should consider in selling to women through home service activities.

Brief resumes of the program for selling appliances through central home service departments were given by Emma Maurice Tighe, of the Boston Edison Co., Marguerite Pressnell, Detroit Edison Co., Jean Lovejoy, West Penn Power Co., Pittsburgh; and Harriet Brigham, Oklahoma Gas & Electric, Oklahoma City, Okla.

Presenting an outline of the work of a distributor's home service group, Nell Snively, Rex Cole, Inc., New York, stated that through newspaper cooking schools which her department had conducted, 27,000 women were reached with practical demonstrations of equipment, within a three month period.

#### Florence Freer Tells of Tie-Up With Model Home Builders

Another program used by a home service department to tie-in with the kitchen planning movement, was that which Miss Florence Freer of the Brooklyn Edison Co., told about. In this city, she explained, the contractors have built a number of model homes which are equipped with all-electric kitchens.

"We have a home service worker there to demonstrate the appliances whenever the builder requests our services. There are seven such homes in Brooklyn now. This promotion gives our workers a chance to obtain prospects actively in the market for appliances."

Key-note of the conference was reached in the words of Eloise Davison of the Herald Tribune Institute in her address: "You are having to turn your attention to better homes as part of your work, because no matter how fine the equipment is, if there are no facilities for using it in the homes of today, it is useless and will not be sold."

Practical methods of meat cookery which the home economist selling ranges could use in demonstration work were outlined for the conference delegates by Inez Wilson, of the National Live Stock & Meat Board.

P. B. Zimmerman, general sales manager, G-E appliance and merchandise department, last speaker to address the conference, said:

"I believe that you can be the greatest factor in this revolution in the cause for better living—the great American revolution which is now going on."

He added that home service workers had an opportunity of turning the sale of all-electric kitchens into the greatest load-building promotion that exists.

#### List of Attendance at G-E Home Service Conference

Charles Annett, Detroit Edison Co., Detroit; Lois A. Baker, General Electric Supply Corp., Detroit; Ethel S. Ballinger, Cleve. Elec. Illum. Co., Ashtabula, Ohio; Jean Barclay, Peoples Gas & Electric Co., Mason City, Iowa; Isabel Barry, Ohio Public Service Co., Cleveland; Marion Barry, The Electrical League, Cleveland; Esther M. Baughman, Keystone Public Service Co., Oil City, Pa.; Ruth I. Bean, Staten Island Edison Corp., St. George, S. I., N. Y.

Catherine Bradley, Toledo Edison Co., Toledo; Mary E. Bradley, N. Y. Central Electric Corp., Hornell, N. Y.; Maybelle F. Brayton, United Electric Light Co., Springfield, Mass.; Esther Lee Bride, Union Electric Light & Power, St. Louis; Avis R. Broadhurst, Pennsylvania Electric Co., Johnstown, Pa.; Evelyn Brockett, Cleve. Elec. Illum. Co., Mentor, Ohio; Blythe Burnette, Tide Water Power Co., Wilmington, N. C.; Mrs. Mary Belle Burnett, Cincinnati Gas & Elec. Co., Cincinnati.

Ruth Carmen, Elmira Light, Heat & Power, Elmira, N. Y.; Vera Cernich, James and Co., Inc., St. Louis; L. W. Clauer, Ohio Public Service Co., Cleveland; Rose Coakley, The Toledo Edison Co., Toledo; Helene Cosgray, The Toledo Edison Co., Toledo; Ruth Crawford, Canadian General Electric Co., Toronto, Canada; Ethel R. Cunningham, Monongahela System, Clarksburg, W. Va.

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# Air Conditioning

## Estimating the Humidification Requirements of Residences

By William H. Severns\*  
Professor of Mechanical Engineering, University of Illinois

The atmosphere in which human beings exist consists of dry air and varying amounts of water vapor. The components of dry air and its possible impurities such as dust, bacteria, toxic gases, etc. will not be discussed here. The water vapor is steam which, when perfectly formed, is clear and colorless as is clear dry air.

Steam or water may exist in either of two states, i.e., in a saturated, or in a superheated condition. Pure water may be vaporized at various temperatures depending upon the absolute pressure exerted upon it.

The higher the pressure to which the water is subjected the higher its boiling temperature; and conversely the lower the pressure, the lower the vaporization temperature.

Vapor which exists at a temperature corresponding to its absolute pressure is termed saturated and vapor which exists at a temperature greater than that corresponding to its absolute pressure is in a superheated state.

The amount of water vapor that can be mixed with air is a variable quantity which depends upon the dry-bulb temperature of the air.

### Dry-Bulb Temperature

The dry-bulb temperature is the temperature of air as indicated by any thermometer having a moisture-free bulb which is not affected by water vapor held in the air.

The wet-bulb temperature of air is the lowest temperature which a water wetted body will attain when exposed to the air when it is in motion. Both dry and wet-bulb temperatures may be obtained by use of a psychrometer.

This particular instrument is known as a sling psychrometer. It consists of matched thermometers which are accurately calibrated and which are mounted upon a frame that may be whirled about the pivot handle.

\*Address at First Annual Conference on Air Conditioning at University of Illinois. Reprinted from University of Illinois Engineering Experiment Station Circular No. 26.

The bulb of the thermometer used to determine wet-bulb temperatures is covered with one layer of very thin gauze which should be moistened with distilled water when a reading is to be taken.

When dry and wet-bulb temperatures are to be determined the instrument is rotated rapidly in the air being investigated and the readings of both thermometers taken when the wet-bulb temperature is a minimum. Positive motion of the air must be determined.

### Accurate Readings Necessary

Ordinary hygrometers standing in still air often give misleading and inaccurate wet-bulb temperature indications which are generally too high. Accurate determinations of both dry and wet-bulb temperatures are essential in psychrometric work as it is from these data that the moisture and total heat held by the air may be determined.

The wet-bulb temperature is doubly important as it fixes the amount of heat held by a unit of air and water vapor at any dry-bulb temperature.

The depression of the wet-bulb temperature below that of the dry-bulb is produced by the evaporation of moisture at the wetted thermometer bulb. Sensible heat is transformed to latent heat when the evaporation takes place and the amount of evaporation that may occur at the moistened thermometer bulb is dependent upon the quantity of moisture mixed with the air.

Sensible heat is that form of heat energy which, when added to or abstracted from a body, will produce a change of temperature of the body. Latent heat when added to or abstracted from a material will cause a change of the physical state of the material, either at melting or boiling but does not produce a temperature change.

The unit of heat as used by heating and air conditioning engineers is the British thermal unit, B.t.u., which

is 1/180 of the amount of heat necessary to raise the temperature of one pound of pure water from 32 to 212 deg. F. when the water is subjected to an atmospheric pressure of 14.7 lb. per sq. in.

The greater the amount of moisture mixed with air maintained at a given dry-bulb temperature, the less will be the lowering of the wet-bulb temperature, and the less the amount of the wet-bulb depression.

The water vapor mixed with dry air is termed humidity. Absolute humidity is the weight of water vapor, in pounds or grains, per cubic foot of the mixture. Specific humidity of air is the weight of water vapor, in pounds or grains, per pound of dry air.

### Saturated Air

Air is saturated when the maximum amount of water vapor possible, at any given dry-bulb temperature, is mixed with it. The maximum amount of moisture which may be mixed with air is increased as the dry-bulb temperature is increased, and is decreased as the dry-bulb temperature is lowered.

When air is saturated it holds the maximum amount of saturated vapor possible at its dry-bulb temperature, its dry and wet-bulb temperatures are identical, and its relative humidity is 100%.

When air is not saturated its wet-bulb temperature is less than its dry-bulb temperature by an amount depending upon the degree of saturation existing. Relative humidity is a ratio, usually expressed as a percentage, which indicates the degree of saturation existing in a space due to the water vapor present.

The moisture, in the form of vapor, held within an enclosure occupies the space as though the air were not present, and exerts its partial pressure, which, together with the partial pressure of the dry air, constitutes the total pressure of the mixture.

When the air is saturated the partial pressure of the vapor is that of saturated steam at the same temperature and pressure. When the air is only partially saturated, that is when the relative humidity is less than 100%, the vapor pressure is less than that of saturated steam corresponding to the dry-bulb temperature, and the vapor of the air is in a superheated condition.

### Calculating Required Vapor

The weight of water vapor required to saturate one pound of dry air is calculated in the following manner. The case of air at 71.5 deg. F. and 29.92 in. of mercury atmospheric pressure is taken, as use will be made of the data later.

From "Steam Tables and Mollier Diagram," by Keenan, it may be ascertained that the volume of one pound of saturated steam at 71.5 deg. F. is 828.2 cu. ft. and its vapor pressure is 0.382 lb. per sq. in. abs. The density of the steam is:

$$\frac{1}{828.2} = 0.001208 \text{ lb. per cu. ft.}$$

The barometric pressure of 29.92 in. of mercury represents a pressure of  $29.92 \times 0.491 = 14.696$  lb. per sq. in., and the partial pressure of the dry air is  $14.696 - 0.382 = 14.314$  lb. per sq. in. abs.

The fundamental gas law equation is  $PV = MRT$  or  $V = \frac{MRT}{P}$ , where

$V$  is the volume of gas in cu. ft.,  $P$  is the absolute pressure in lb. per sq. ft.,  $M$  is the weight of gas in lb.,  $R$  is a constant, 53.35 for air, and  $T$  is the absolute temperature of the gas in deg. F.

In the case under consideration,  $M$  is taken as one pound and

$$V = \frac{1 \times 53.35 (459.6 + 71.5)}{14.314 \times 144} = 13.74$$

cu. ft., the volume of one lb. of dry air. Hence, the moisture required to saturate one pound of dry air, for the conditions stated, is  $13.74 \times 0.001208 = 0.01659$  lb.

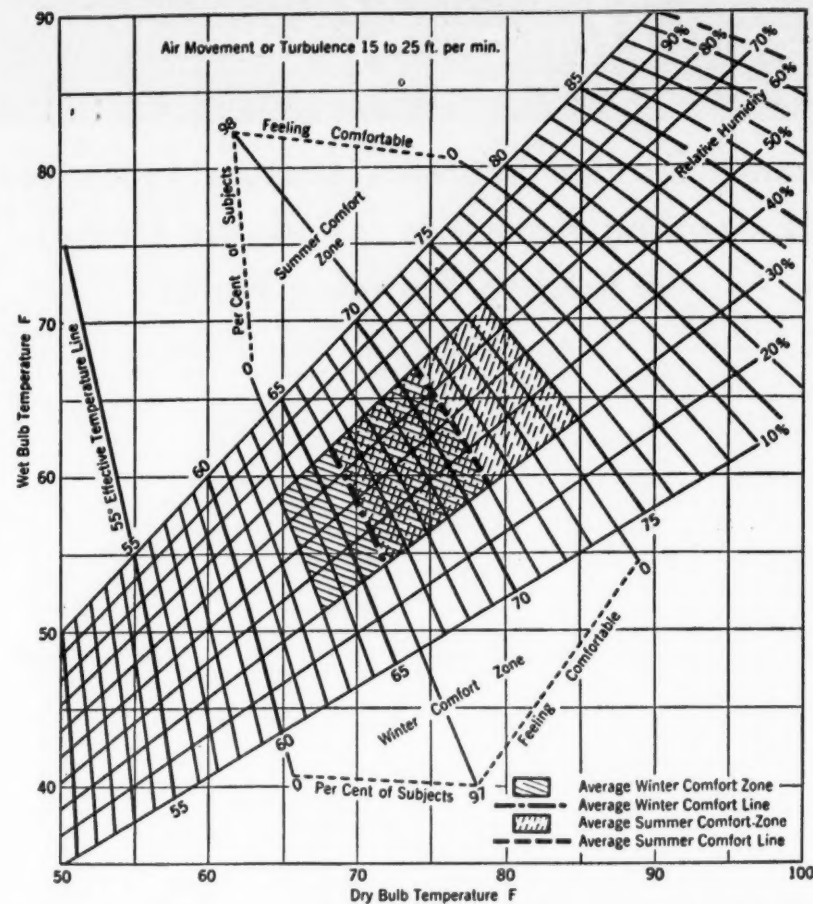
### Vapor Condensation

Any reduction of the dry-bulb temperature of saturated air will cause condensation of some of its water vapor. When the air is not saturated, the dry-bulb temperature to which the air must be lowered, in order to produce water vapor condensation, is less than either the original dry-bulb or the original wet-bulb temperature.

The dry and wet-bulb temperature at which condensation of water vapor from air may be started is the dew-point temperature. This temperature is dependent upon the absolute humidity of the air. If the absolute humidity is high, the dewpoint is higher than when the absolute humidity is low.

Everyone is familiar with the collection, under certain conditions, of either a film of moisture or drops of water on the outside surface of a drinking glass containing either cold or ice water.

## Effective Temperature Chart



Comfort or effective temperature chart for air velocities of 15 to 25 f.p.m. (still air).

Such an example illustrates the cooling of air and water vapor at the cold surface to produce vapor condensation and deposit. The air in contact with the cold surface has been cooled to or below its dewpoint temperature.

### Humidification in Residences

With the foregoing fundamental definitions in mind, the next considerations will be those of the humidification of residences. During the heating season the outside air temperatures vary considerably, and at times drop to rather low values. Consequently, the absolute humidities of the outside air fluctuate with outside air temperature changes.

As the capacity of the air to carry moisture decreases with a decrease of its dry-bulb temperature, the amount of vapor held by the air is very small at temperatures of 0° F. or less, even though its relative humidity is high, or even though the air is saturated under such conditions.

Humidification of the air during the heating season is desirable for the production of healthful and comfortable conditions, and for the protection of the interior finish of the structure, the furniture, the rugs, carpets, and other furnishings.

### Effects of Dry Air

Air deficient in moisture produces a dryness of the membranes of the nasal passages and throat, thereby promoting the occurrence of colds and respiratory ills. Dry air absorbs moisture from floors, doors, and furniture, causing shrinkage and the opening of cracks in the woodwork and the falling apart of pieces of furniture.

The fibres of rugs and carpets become more brittle when extremely dry, thereby causing more rapid deterioration of such furnishings. Furthermore, the production of static charges of electricity is an annoyance to the householder in periods of cold weather when the air of the house is allowed to become low in moisture content.

No inhabited structure is absolutely air tight but permits the inleakage of outside air, termed infiltration, and the outleakage of a corresponding amount of warm inside air, which is known as exfiltration. These processes add materially to the heating load of the structure, as the outleakage air carries away heat, and the inleaking cold air must be warmed to the room temperature, otherwise, the rooms will not be comfortably heated.

### Infiltration and Exfiltration

Infiltration and exfiltration also increase the amount of moisture which must be liberated within the space to maintain healthful and comfortable conditions. With low outside air temperatures, the absolute humidity of the inleaking air is low; consequently, when the air is warmed to room temperature, its relative humidity will be low unless moisture is added to it.

The outgoing air takes moisture away with it so that, unless moisture is continuously added, both the absolute humidity and the relative humidity of the warmed space will not be sufficient.

The amount of air inleakage, and the corresponding outleakage of air from a structure, are dependent upon a number of factors. These items include: the height of the structure, the inside and outside air temperature

conditions, the wind movement, the porosity and workmanship of the building walls, and the number and the width of cracks in the walls and about window and door openings.

The tightness of the building may be improved by the use of paint and wall paper on the interior surfaces of exterior walls, by caulking cracks about window and door frames, and by the use of either weather stripping or storm doors and storm sash at window and door openings. Both window stripping and storm sash, when properly applied will do much toward reducing the hourly infiltration of air into the structure. Storm sash and storm doors have an advantage in that the heat transmission losses occurring at those areas where they are used are materially reduced below those which occur when such equipment is not used.

### Inside Surface Temperatures

When the heat losses, due to transmission through window glass and doors, are reduced the inside surface temperatures of such areas will be greater than they would be with a greater heat loss occurring with the same inside-outside air temperature differential. Inside surface temperatures are important in residence humidification problems as will be shown later.

Considerable investigative work has been done relative to the leakage of air through various types of walls, and also through the cracks about window and door openings. These test data are valuable if the engineer can modify them to suit the conditions of the structure with which he is concerned.

The chief problems in the use of such data are the widths and the lengths of the cracks which should be considered, as well as the probable wind velocity to be used.

Another scheme of estimating the (Concluded on Page 19, Column 1)

Table 1

Air Changes Per Hour Due to Infiltration

Room or Building	Number of Air Changes Taking Place Per Hour
Rooms, 1 side exposed.....	1
Rooms, 2 sides exposed.....	1½
Rooms, 3 sides exposed.....	2
Rooms, 4 sides exposed.....	2
Rooms with no windows or outside doors.....	½ to ¾
Entrance halls.....	2 to 3
Reception halls.....	2
Living rooms.....	1 to 2
Dining rooms.....	1 to 2
Bath rooms.....	2
Drug stores.....	2 to 3
Churches, factories, etc.....	½ to 3

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# Factors Considered In Humidifying Residences

(Concluded from Page 18, Column 5) infiltration and the exfiltration of a structure is based on the estimated number of air changes occurring within the structure each hour. Recommended values as given in the 1936 edition of the A.S.H. and V.E. Guide are shown in Table 1.

Under no condition should the number of air changes per hour be taken as less than one-half for any building. Estimates of the amount of air leaking into and out of a structure per hour, based on the number of air changes, are just as accurate as the assumed number of changes, as all other factors entering into the calculation are definite.

Thus, in the case of a residence having 13,800 cu. ft. of occupied space, if the structure is equipped with storm sash and doors properly fitted, the number of air changes per hour may be taken as from 1/4 to 1.

Under such conditions, using one air change, the volume of air leaking into and out of the structure is 13,800 x 1 = 13,800 cu. ft. per hour measured at room temperature and pressure. This amount of air will provide adequate ventilation for eight adults.

## Humidity to Be Maintained

The amount of moisture to be maintained in the air of the residence depends upon the conditions deemed necessary for comfort, and also upon the physical limitations of the structure. Reference to the comfort chart, Fig. 1, indicates that an effective temperature of 66 deg. F. gives the optimum condition of comfort, in the winter, for most people.

Reference to the comfort chart and psychrometric tables establishes the conditions of dry-bulb temperature, relative humidity, and dew-point temperature (see Table 2) which will produce an effective temperature of 66 deg. F. when the dry-bulb temperatures range from 70 to 74 deg. F.

Some individuals are prone to recommend a relative humidity of 50% or even higher without thought of the difficulties involved in the maintenance of such condition.

## Preventing Condensation

The dewpoint temperatures as given in Table 2 indicate the temperatures above which the inside surfaces of exposed walls and glass areas must be kept if condensation is not to occur upon them.

The accumulation of condensed vapor on glass areas in the form of frost and ice which will melt when the sunshine strikes the surface is not desirable. Damage and discoloration of the wood of window stools will result when water accumulates upon them. Due to the accumulation of dust upon them, glass surfaces generally appear dirty after they have been wet.

Therefore, when humidification of air is accomplished in the winter time, provision should be made to maintain interior surfaces of exposed walls and glass at a temperature above that of the dewpoint of the air held within the structure.

## Transmission Coefficient

The calculated overall coefficient of heat transmission, for a frame wall having boxing and weather boarding on the outside, lath and plaster on

the inside, and without insulation, is 0.26 B.t.u. per hour, per sq. ft. of area, per deg. F. difference in temperature between that of the outside and the inside air.

The theoretical inside surface temperatures for such a wall are as indicated by Table 3 for various inside and outside air temperatures.

The inside surface temperatures shown by Table 3 are all above the dewpoint temperatures of air for the conditions indicated by Table 2, and no condensation on the interior surfaces of the wall may be expected for any of the conditions enumerated in Table 3.

An investigation of the theoretical inside surface temperatures of glass areas for the given inside and outside air temperatures is desirable. Both single thickness of glass and double glass panels with an air space between the two glass panels are considered in the derivation of the surface temperatures given by Table 4.

The commonly-used coefficient of heat transmission for single glass is 1.13, and for double glass with an air space between the panes 0.45 B.t.u. per hr., per sq. ft., per deg. F.

The results of investigations dealing with inside surface temperatures of window glass under winter conditions have been published recently by Emswiler and Randall in the April 1936 issue of the Journal Section of the A. S. H. and V. E. which appears in "Heating, Piping and Air Conditioning."

## Single Glass Windows

These investigators established that with single glass the difference between the air temperature of the room and the temperature of the inside surface of the glass of windows is 67% of the inside-outside air temperature difference. For windows fitted with ordinary storm sash the percentage is 30.

When the data of Emswiler and Randall are used in calculating inside surface temperatures of glass, the values obtained for single glass are somewhat higher than those given in Table 4, and those obtained for double glass are the same as those in Table 4.

Calculations reveal that, with a single thickness of glass, condensation of moisture with its disagreeable results will be pronounced with an outside air temperature of 34 deg. F. or less when the relative humidity inside the space is 35%, with a dry-bulb air temperature of 71.5 deg. F.

Consequently, effective humidification cannot be said to be practical in cold weather when only a single thickness of glass is used in window and door openings. When the heat losses at window and door openings are reduced by the use of storm sash and storm doors effective humidification is practical when low outside air temperatures exist.

If an inside air temperature of 71.5 deg. F. dry-bulb and a relative humidity of 35% are taken as being feasible and satisfactory, without excessive condensation of water vapor except when the outside air temperature falls below -10 deg. F., a basis of estimating the amount of moisture for humidification purposes is established for a structure which is reasonably tight.

## Specific Calculation

As an example of a calculation involving the humidification requirements the case of a residence having an occupied space of 13,800 cu. ft. and which has one air change per hour may be taken. The residence air is to be maintained at a dry-bulb temperature of 71.5 deg. F. and a relative humidity of 35% when the outside air is saturated and has a dry-bulb temperature of -10 deg. F.

The amount of moisture required for humidification purposes is to be found, and the extra heat required to effect the humidification is to be calculated.

The air infiltration is estimated to be 13,800 cu. ft. of air per hour, measured at 71.5 deg. F. and a barometric pressure of 29.92 in. of mercury, and the weight of air involved per hour is 13,800 ÷ 13.38 = 1031 lb.

The value 13.38 is the specific volume of one pound of dry air at 71.5 deg. F. and 29.92 in. of mercury. The specific humidity of air at 71.5 deg. F. and 35% relative humidity is 0.01659 x 0.35 = 0.005807 lb. per lb. of dry air.

The specific humidity of air at -10 deg. F. and 100% relative humidity is 0.000459 lb. per lb. of dry air.

Therefore, the moisture which must be added to the leaking air per hour is 0.005807 - 0.000459 = 0.00535 lb. per lb. of dry air, and the moisture requirements per hour are 1031 x 0.00535 = 5.52 lb. or 5.52 ÷ 8.34 = 0.661 gallons.

Assuming no other sources of moisture supply, the humidification requirements per 24 hours are 0.661 x 24 = 15.9 gallons of water.

If the air leakage amounts to 1/4 of a change per hour instead of one change, the foregoing value becomes 15.9 x 1/4 = 3.975 gallons per 24 hours and the hourly evaporation of water must be 4.15 lb.

The calculated hourly heat losses for the residence are 885 B.t.u. per

Table 4

Calculated Inside Surface Temperatures of Single and Double Glass With An Air Space For Various Inside and Outside Air Temperatures

Inside Air Temperature Deg. F.	Outside Air Temperature Deg. F.	Inside Surface Temperatures Deg. F.	
		Single Glass	Double Glass With An Air Space
70	0	17.2	49.0
70	-10	9.7	46.0
70.5	0	17.4	49.4
70.5	-10	9.9	46.4
71	0	17.5	49.7
71	-10	10.0	46.7
71.5	0	17.7	50.1
71.5	-10	10.1	47.1
72	0	17.7	50.4
72	-10	10.2	47.5
73	0	18.0	51.0
73	-10	10.5	48.1
73.8	0	18.2	51.7
73.8	-10	10.7	48.7

degree of inside-outside air temperature difference. If by reason of humidification the necessary dry-bulb temperature of the inside air can be reduced 3.5 deg. F. the hourly heat losses from the structure may be reduced by an amount equal to 885 x 3.5 = 3100 B.t.u.

## Sensible Heat Available

Humidification, however, accomplished, requires the addition of heat to water to produce the vapor. A simple method of calculating the heat added to produce the vapor is to consider that the water is made to boil under atmospheric pressure at 212 deg. F.

The excess heat added to the water over that held by the vapor in its final condition is credited as sensible heat which is available for heating the house.

This method gives results which check reasonably well with other methods of calculation, and can be applied to any condition, provided the proper numerical quantities for the weight of water to be evaporated, the inside air temperature, and the temperature of the water supply are inserted.

$$h = W_w [(212 - t_i) + 970.2 - 0.45 (212 - t_i)]$$

h=heat necessary to effect humidification, B.t.u. per hr.

W<sub>w</sub>=weight of water to be evaporated per hr., lb.

t<sub>i</sub>=temperature of the supply water, deg. F.; 50° F. in this case.

t<sub>i</sub>=dry-bulb temperature of inside air, deg. F.; 71.5° F. in this case.

$$\text{Substituting in the equation, } h = 5.52 [(212 - 50) + 970.2 - 0.45 (212 - 71.5)]$$

$$= 5.52 [162 + 970.2 - 63.5]$$

$$= 5.52 \times 1,068.7$$

$$= 5,900 \text{ B.t.u. per hour.}$$

The excess of heat required for humidification over that saved by humidification is 5,900 - 3,100 = 2,800 B.t.u. per hour. The additional hourly requirements of coal, having a heating value of 12,000 B.t.u. per lb. as fired, and used with an efficiency of 60%, are

$$\frac{2,800}{0.6 \times 12,000} = \frac{2,800}{7,200} = 0.39 \text{ lb.}$$

The use of this small extra amount of fuel during cold weather can be justified by the more healthful conditions existent in the house, and the protection afforded to moisture-bearing objects within it.

## 80 Coaches & 3 Dining Cars To Be Conditioned by L. & N. Railroad

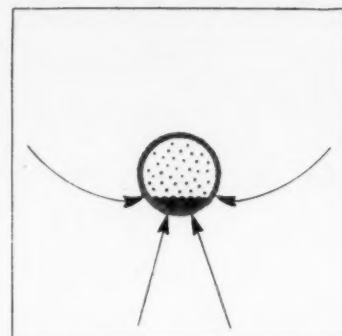
BIRMINGHAM, Ala.—Louisville & Nashville Railroad has appropriated \$800,000 for the air conditioning of 80 all-steel coaches and three dining cars.

This equipment is to be installed in the company's Louisville shops, and will be ready for service next spring.

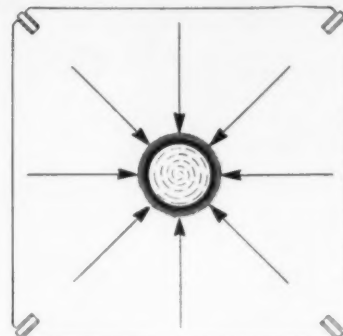
These cars, together with those already conditioned, will provide completely air-conditioned service on practically every L. & N. main line train.

# The Buyer's Guide

## "Peerless for Performance"



Heat Transfer . . . Usual Pin Coil



Heat Transfer . . . 1936 Peerless

## PEERLESS "RIFLED" FIN COILS

Make use of the entire surface of tubing walls instead of only the bottom section. Every inch of wall is covered with a whirling sheet of refrigerant liquid while operating. The spiral ribbon in "Rifled" Coils extends the tube surface into the whirling refrigerant—increasing the amount of prime surface in contact with refrigerant. Quicker heat transfer. Increases efficiency over 30% Write for catalog.

## PEERLESS ICE MACHINE COMPANY

TWO FACTORIES  
CHICAGO 515 W. 35th St. NEW YORK 43-20 34th St., L.I.C.  
Cable address: PEERLESS-DETROIT  
Representatives in all Principal Cities

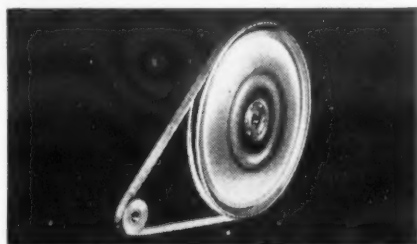
## LEADING MAKERS OF REFRIGERATING AND AIR CONDITIONING EQUIPMENT STANDARDIZE ON

# Dayton V-BELTS

Because of their outstanding advantages Dayton V-Belts have been used as original equipment on leading makes of air conditioning equipment, electric refrigerators, washing machines and other appliances for many years.

Dayton V-Belts are the logical choice because they provide silent, dependable transmission—because their powerful grip prevents slippage—because they run smoothly without weaving, twisting or vibrating.

A nearby distributor carries a complete stock of Dayton V-Belts at all

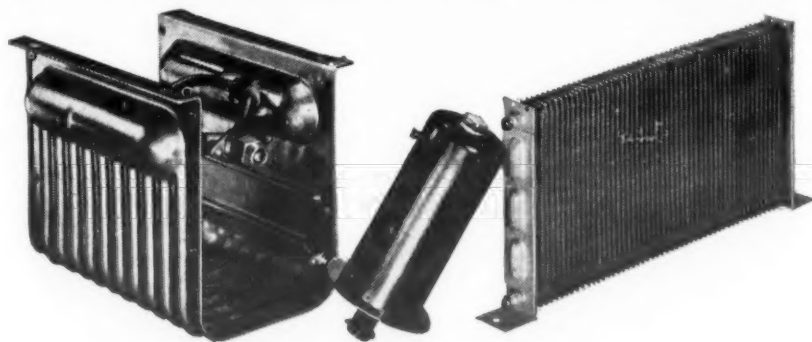


Whether for Fractional or a Thousand H.P. there is a Dayton V-Belt Drive for the job.

times and can quickly supply you. Write us for price list and complete information.

THE DAYTON RUBBER MANUFACTURING CO. • DAYTON, OHIO  
World's Largest Manufacturer of V-Belts

## SUPPLYING THE REFRIGERATION INDUSTRY



Evaporators, Receivers, Condensers, Compressor Domes, Compressors and Mechanical Parts. Also "Houdize," a perfected process for permanently uniting ferrous or non-ferrous metals.

OAKES PRODUCTS CORP. North Chicago and Decatur, Ill. HOUE ENGINEERING CORP. Buffalo, New York

DIVISIONS OF HOUDAILLIE - HIERSEHEY CORPORATION  
General Executive Offices: Detroit, Mich.

## QUANTITY PRODUCTION

made this Super-Cold Freezer the most efficient and lowest priced in America. Undersell nearest competition \$200.00. Shipped with or without condensing unit. Thousands of interested prospects.

For Franchise write

## THE SUPER-COLD CORPORATION, 1020 EAST 59th STREET, LOS ANGELES, CALIFORNIA

Branches and Stocks at:  
32-27 QUEENS BLVD., LONG ISLAND CITY, N.Y. 540 N. LA SALLE ST., CHICAGO, ILL.  
2021 COMMERCE ST., DALLAS, TEXAS 268 GRAYS INN RD., LONDON, W. C. 1

Table 2

Dewpoint Temperatures for Various Dry-Bulb Temperatures and Relative Humidities

Dry-bulb Temperature of Air Deg. F.	Relative Humidity Per Cent	Dewpoint Temperature Deg. F.
70	50	50.8
70.5	45	48.5
71	40	45.9
71.5	35	42.9
72	30	39.3
73	20	30.4
73.8	15	24.8

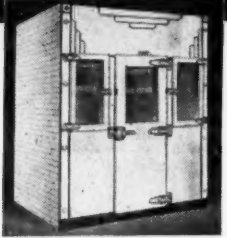
Table 3

Calculated Inside Surface Temperatures of a Frame Wall for Various Inside and Outside Air Temperatures

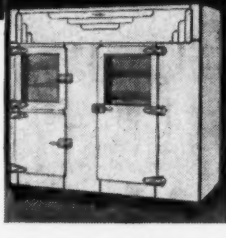
Inside Air Temperature Deg. F.	Outside Air Temperature Deg. F.	Inside Surface Temperature Deg. F.
70	0	59.0
70	-10	57.4
70.5	0	59.4
70.5	-10	57.9
71	0	59.9
71	-10	58.2
71.5	0	60.2
71.5	-10	58.7
72	0	60.7
72	-10	59.1
73	0	61.5
73	-10	60.0
73.8	0	62.1
73.8	-10	60.6



## DISTRIBUTORS WANTED



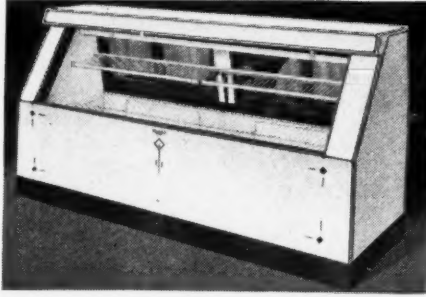
Percival equipment meets every requirement of the modern food store.



For mechanical refrigeration only.

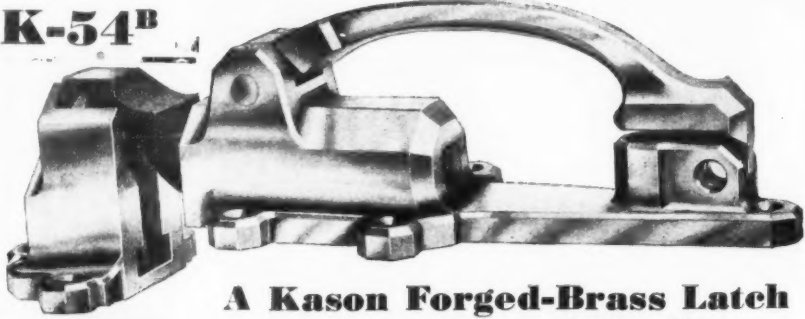
Percival's complete line of display cases, reach-in refrigerators, walk-in coolers, chests, etc. will increase your sales of electrical refrigeration equipment and offer added earnings.

Desirable territories still available. Write for complete information.



**C.L. PERCIVAL CO.**  
DES MOINES, IOWA

**K-54B**



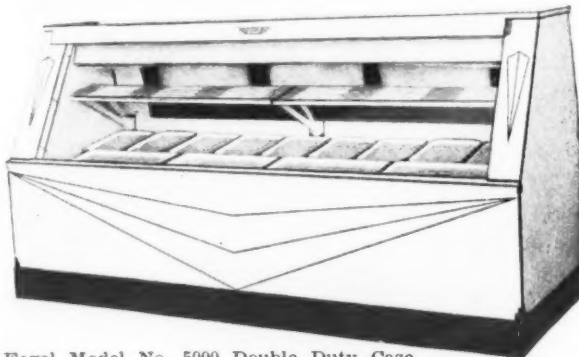
### A Kason Forged-Brass Latch of Unsurpassed Quality

For simplicity of construction, ease of operation, rugged strength and massive sealing power there is no latch which compares with K-54B. This, the largest of KASON'S comprehensive line of refrigerator latches, is the standard size for heavy, walk-in doors. Its unsurpassed quality has been emphatically demonstrated in many years of faultless, gratifying service.

KASON MANUFACTURES THE WORLD'S FINEST HARDWARE FOR EVERY COMMERCIAL REFRIGERATOR NEED

**KASON HARDWARE CORPORATION**  
127-137 Wallabout St., BROOKLYN, N. Y.

### FOGEL OFFERS A COMPLETE LINE To Commercial Refrigeration Distributors INCREASE YOUR CASE AND COOLER PROFITS FOR 1937

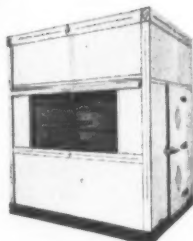


Fogel Model No. 5000 Double Duty Case  
Fogel Franchise is Valuable  
Write For Details Today

**Fogel Refrigerator Company**  
Philadelphia, Pa.

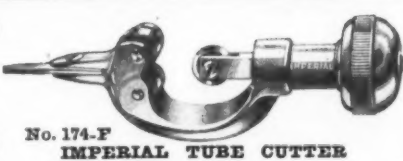
Manufacturers of Complete Market Equipment Since 1899

Factory Help Enables You to Become Leaders in Your Territory



Walk-In Cooler

### A New Efficiency Feature in IMPERIAL SERVICE TOOLS



No. 174-F IMPERIAL TUBE CUTTER

An example of the up-to-date character of this popular line is the "flare-holding groove" in tube cutter No. 174-F. The tube rests against twin rollers, in which is a vertical groove; see A in sketch. When it is desired to remove the flare only, it is fitted into the groove, and the blade leaves the rest of the tube untouched.

No. 174-F Tube Cutter takes all tubing from 3/16" to 3/4". Each, \$2.75

Write for Catalog 77-E just off the press.

**IMPERIAL BRASS MFG. CO.**  
565 S. Racine Ave. CHICAGO

### TYLER'S NEW WELDED STEEL REFRIGERATOR CASES



At last a general purpose case at a sensible price. Offers every advantage of the most costly cases at tremendous savings. Modern in every detail. Comes equipped with coils. Single and double duty models.

**AN AMAZING VALUE**

Hundreds in use. Perfect refrigeration for meat, dairy and delicatessen products and all perishables sold in food stores. Write or wire for all the facts.

**TYLER Sales-Fixture CO., Dept. E, Niles, Mich.**

3 INCH INSULATION-TRIPLE GLASS

## Air-Conditioning Sales Total \$4,172,028 for October

Item	Value of Orders Booked, 1936	October Total, 9 Mos.
<b>Total</b>	<b>\$4,172,028</b>	<b>\$35,680,483</b>
<b>Air Conditioning Group—Total</b>	<b>\$1,225,310</b>	<b>15,731,724</b>
Unit Systems—		
Self-contained (shipped substantially complete).....	54,202	1,873,691
Not self-contained (shipped in sections), including refrigerating or cooling medium .....	523,992	5,346,255
Central-station Systems, excluding installation if installed—		
Human comfort (including refrigerating or cooling medium sold separately or otherwise for air conditioning)* .....	235,328	4,478,121
Industrial (including refrigerating or cooling medium sold separately or otherwise for air conditioning)* .....	199,360	775,905
Refrigerating or cooling medium sold to contractors or other distributing outlets (not manufacturing air-conditioning equipment) for air-conditioning systems, when such knowledge as to the application is available.....	6,349	1,658,178
Air washers, including pumps and motors and controls where furnished .....	57,247	613,426
Air filters (not including sales of filters used with machinery other than fans) .....	23,745	191,354
Humidifiers .....	125,087	794,794
<b>Fan Group—Total</b>	<b>\$1,319,811</b>	<b>\$11,916,654</b>
Fans, including bearings, pulleys or couplings (if furnished)—		
For public and semi-public buildings .....	147,963	1,425,499
For general industrial uses .....	404,003	3,505,450
For mechanical draft .....	150,529	1,443,831
For jobber stocks and unknown uses .....	48,756	611,552
Small housed and propeller fans—		
Direct connected small housed blowers with motors and control (merchandise motors) .....	147,051	1,218,666
Propeller fans, direct connected and belted (for ventilation only) .....	280,346	2,868,462
Driving mechanism for general fan use (not reported above)—		
Electric motors and controllers (manufactured or jobbed)....	132,074	754,289
Steam engines (manufactured or jobbed).....	9,089	88,905
Steam turbines (manufactured or jobbed).....		
<b>Unit Heater Group—Total</b>	<b>\$1,626,907</b>	<b>\$ 8,032,105</b>
Industrial Type Unit Heaters, including heating element and motors where furnished—		
Equipped with blower-type (centrifugal) fans.....	275,448	1,199,365
Equipped with propeller-type fans .....	1,084,204	3,758,633
School-Room Type Unit Heaters, including heating element and motors and control where furnished .....	96,381	1,520,737
Indirect Heating Surface (not including unit heater surface)—		
Steel pipe coil type (manufactured or jobbed).....	3,848	19,535
Cast iron type (manufactured or jobbed).....	13,662	131,819
Copper or aluminum type (manufactured or jobbed).....	153,364	1,402,016

## Air-Conditioning Engineer Must Find Out What Public Wants & Design Equipment Accordingly, Boulware Tells ASRE

By Phil B. Redeker

NEW YORK CITY—"The public is the boss, and it should be the job of the engineer to find out what the public wants in air conditioning, and design equipment accordingly," L. R. Boulware, vice president and general manager, the Carrier Corp., told members of the American Society of Refrigerating Engineers, meeting recently at the Pennsylvania hotel here.

"If we are to be successful in air conditioning, our job is not to sell what we want to sell, but to sell what the public wants to buy," declared Mr. Boulware, who made his informal talk at one of the technical sessions.

Mr. Boulware outlined the steps in a correct market analysis as follows:

1. Find out what the public wants, how badly they want it, and how much they'll pay for it.
2. The market researchers must then coordinate their findings to put their finger on the generally desired result.
3. This "generally desired result" on the part of the buying public must be transmitted to the builder of the product.
4. Builders must gear their product to the desires of the buying public.

"The fact that people want air conditioning, but that they don't know

what it is—their ignorance of its year-round functions—shows what a poor selling job we've done," declared Mr. Boulware.

"If you're trying to sell air conditioning don't talk about how much it costs—nobody sells anything by expounding on how much it costs.

"Anyway, prices are set by the public's estimate of the value of your services plus the effects of competition."

Costs in air-conditioning work should be reduced, believes Mr. Boulware, but such reductions as can be made will come chiefly in application of the equipment—engineering and installation, as factory production methods hold out no particular promise of great cost reductions in the future, said the Carrier general manager.

"One thing that the engineers can do to create a more favorable attitude towards air conditioning is to figure out a way to reduce that proportion of the equipment which is 'seasonal' in its function," stated Mr. Boulware.

"The hours that parts of the equipment stand idle over a year are something of a bar to gaining a favorable reaction on the part of a prospective buyer."

## National Amusement Park Association Discusses Air Conditioning as Business Builder

CHICAGO—Operators of the nation's outdoor summer amusement parks are seriously considering the possibilities of air conditioning as a means of increasing their business. Both an air-conditioning engineer and an amusement park operator who has tried air conditioning spoke before the annual convention of the National Association of Amusement Parks, Pools, and Beaches, which met here Dec. 1 to 4.

"The American public is 'air conditioning conscious,'" stated engineer M. G. Harbula, of Wheaton, Ill. "In the future it is going to spend its amusement dollar where the most comfort is offered while the amusement is in progress."

Pointing out that Chicago had pioneered the air conditioning amusement places shortly after the World war, Mr. Harbula claimed that these places must have paid well, or else the owners would not have continued to maintain and improve them.

Mr. Harbula mentioned the growing volume of air conditioning installations in restaurants and refreshment stands, but admitted that there was not much prospect for conditioning amusement park pavilions used as dance halls, game halls, etc.

"There are, however," he maintained, "numerous shows in the average amusement park where air conditioning would easily prove its value."

During hot weather it is uncomfortable to even walk through these vaudeville and freak shows, and air conditioning would be a boon."

Although admitting that the amusement park season was short, Mr. Harbula asserted that this brevity was counteracted, at least partially, by the "afternoon slump" when people search for anyplace that is cool. Amusement parks, he declared, should be prepared to capitalize on this potential market.

Roy Staton, long-time president of Springlake Amusement Park, Oklahoma, followed Mr. Harbula on the program, and declared that there can be only a limited justification for investment in air conditioning at an amusement park.

"Ours is a seasonal business," said Mr. Staton, "and our patrons are not sitting quietly as in a theater or restaurant. They are continually tearing around, and this fact changes the picture somewhat."

He admitted, however, that there was a definite need for air conditioning in closed dance halls, and described the apparatus which conditions the dance casino in his park.

Fresh air is drawn into this 140 by 216-ft. tile building, Mr. Staton declares, at the rate of 60,000 cu. ft. of air per minute, and it is possible to reduce inside temperature from 15 to 20 degrees without great expense.

## Ten Advantages of Air Conditioning Listed in Booklet

NEWARK—Entitled "Modernize—Merchandise," a new 12-page catalog of commercial air-conditioning equipment has been issued by Carrier Corp.

In addition to illustrating the use of compressors and evaporative condensers, and showing diagrams of duct work and cooling coil heaters, the booklet lists "10 things that air conditioning can do for your business," namely:

1. Hold present customers—attract new ones.
2. Encourage patrons to shop more leisurely, spend more time in the inviting atmosphere—the longer they linger, the more they buy—increased unit sales.
3. Advertise you as being progressive—the leader—the merchant who is considerate of his customers and his employees.
4. Conserve your energy and increase efficiency of sales people and office employees—reduce absentees and turnover.
5. Keep merchandise fresher, more salable—reduce spoiling and handling losses—protect perishables—reduce markdowns.
6. Enhance your prestige—lift your head and shoulders above competition—win public good will.
7. Feature sales to increase summer volume.
8. Offset less favorable location—attract shoppers to comfortable shopping facilities—eliminate "dead spots" in store.
9. Reduce cleaning and decorating costs—filter income air—improve lighting efficiency.
10. Make your store a "summer resort"—the most comfortable place in town.

A brief background of Willis Carrier and the Carrier organization also is included.

## Ontario Public Bldg. Conditioned by York

HAMILTON, Ont.—Canada's first air-conditioned public building is the Dominion Public Building in this city, in which a York Freon-12 water cooling system has just been installed by the Canadian Ice Machine Co., York representative here.

Equipment installed includes a 12½ x 10-inch double cylinder York Freon compressor with V-belt drive, a 33 inches by 16-foot horizontal shell-and-tube condenser, a water cooler of the same size, a Freon-12 receiver, and suitable controls.

The system produces 45° F. water which is pumped to four main air washer-dehumidifiers located on the roof. Each of these, with its own system of controls, serves one zone in the building.

## Murray Co. to Handle G-E Air Conditioning In 27 Texas Counties

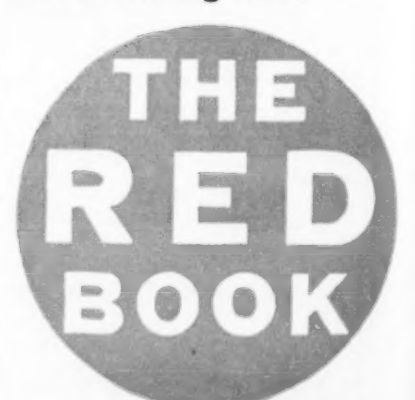
DALLAS—The Murray Co. has been appointed distributor in the north and east Texas territory for General Electric air-conditioning and heating equipment, according to J. K. McDonough, president. The distributorship covers 27 counties in Texas and two in Oklahoma.

J. E. Scott has been appointed manager of the company's air-conditioning and heating equipment department.

## Leeds & Northrup Open Boston Office

BOSTON—Leeds and Northrup, manufacturers of measuring, recording, and controlling instruments and of electric heat-treating furnaces, have opened a New England office in the Chamber of Commerce Building here.

It offers an advantageous advertising rate - - -





# Patents

Issued November 10, 1936

2,060,072. SHEET METAL EVAPORATOR. Delos P. Heath, Detroit. Application May 16, 1931, Serial No. 537,965. Renewed Aug. 24, 1934. 12 Claims. (Cl. 62-126)

2,060,185. FLOW CONTROL MEANS. Lewis W. Eggleston, Detroit, assignor to Detroit Lubricator Co., Detroit. Application June 16, 1933, Serial No. 676,061. 18 Claims. (Cl. 236-99)

2,060,211. HEAT EXCHANGER OR COOLER. Arthur R. Hemphill, Egg Harbor City, N. J. Application Aug. 23, 1935, Serial No. 37,441. 2 Claims. (Cl. 257-248)

2,060,275. COOLING TOWER. James P. Barry, Piedmont, Calif., assignor to Hammond Lumber Co., San Francisco. Appli-

cation March 18, 1935, Serial No. 11,659. 8 Claims. (Cl. 261-110)

2,060,289. CONDITIONING APPARATUS. Sewell H. Downs, Kalamazoo, Mich. Application Sept. 29, 1934, Serial No. 746,167. 12 Claims. (Cl. 98-101)

2,060,300. REFRIGERANT CONTROL. Harry Goldberg, Chicago. Application Nov. 11, 1935, Serial No. 49,100. 4 Claims. (Cl. 137-103)

2,060,301. THERMOSTATICALLY OPERATED VALVE DEVICE. John E. Golob, Cleveland, assignor to The Bishop & Babcock Mfg. Co., Cleveland. Original application Oct. 12, 1933, Serial No. 693,301. Divided and this application April 19, 1934, Serial No. 721,328. 8 Claims. (Cl. 236-34)

2,060,316. REFRIGERATING SYSTEM. Anthony F. Hoessel, Chicago, assignor to Peerless Ice Machine Co., Chicago. Application Nov. 23, 1935, Serial No. 51,222. 11 Claims. (Cl. 62-6)

2,060,332. THERMOSTATICALLY CONTROLLED VALVE. Edward Levy Mayo, Cleveland, assignor to The Bishop & Babcock Mfg. Co., Cleveland. Application June

20, 1934, Serial No. 731,491. 12 Claims. (Cl. 236-34)

2,060,440. HEAT EXCHANGE APPARATUS. Curt Fredrik Rosenblad, Sodertalje, Sweden. Application March 27, 1936, Serial No. 71,090. In Sweden March 28, 1935. 4 Claims. (Cl. 257-245)

2,060,496. COOLING DEVICE. Roy W. Glaser, Edgar J. Olson, and Andrew Olson, Burlington, Wis. Application April 29, 1935, Serial No. 18,758. 3 Claims. (Cl. 31-4)

2,060,589. REFRIGERATION. Carl A. Otto, Milwaukee, assignor to Johnson Service Co., Milwaukee. Application Oct. 2, 1935, Serial No. 43,267. 8 Claims. (Cl. 62-8)

2,060,633. EVAPORATOR FOR REFRIGERATING MACHINES. Delbert F. Newman, Schenectady, assignor to General Electric Co. Application Jan. 26, 1935, Serial No. 3,651. 21 Claims. (Cl. 62-126)

2,060,636. AIR CONDITIONING SYSTEM. Lawrence M. Persons, Des Moines, Iowa, assignor to Penn Electric Switch Co., Des Moines. Application July 16, 1935, Serial No. 31,615. 3 Claims. (Cl. 257-3)

2,060,649. REFRIGERANT COMPRESSOR. Wilbur W. Warner, Fort Wayne, Ind., assignor to General Electric Co. Application Dec. 10, 1935, Serial No. 53,733. 3 Claims. (Cl. 230-58)

2,060,653. REFRIGERATOR EVAPORATOR. Leonard W. Atchison, Schenectady, assignor to General Electric Co. Application Jan. 22, 1935, Serial No. 2,917. 9 Claims. (Cl. 62-126)

2,060,694. REFRIGERATOR. Hans Rufener, and Theophil Eichmann, Bern, Switzerland, assignors, by mesne assignments, to International Carbonic Engineering Co., Kennett Square, Pa. Application Dec. 22, 1930, Serial No. 504,094. In Germany and Switzerland Dec. 24, 1929. 30 Claims. (Cl. 62-91.5)

2,060,712. TEMPERATURE CONTROLLED SWITCH. Judson W. Wright, Detroit. Application March 1, 1935, Serial No. 8,796. 5 Claims. (Cl. 200-137)

2,060,713. THERMOSTATIC SWITCH. Judson W. Wright and Edgar H. Glinz, Detroit. Application March 1, 1935, Serial No. 8,797. 3 Claims. (Cl. 200-138)

2,060,756. CABINET CONSTRUCTION. Gregg F. Forsthoefel, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co. Application Sept. 1, 1931, Serial No. 560,563. 4 Claims. (Cl. 220-9)

2,060,774. CONTROL MEANS FOR REFRIGERATION SYSTEMS. Ernest Zurcher, Schenectady, assignor to General Electric Co. Application July 24, 1935, Serial No. 32,891. 17 Claims. (Cl. 62-4)

## REISSUES

20,166. REFRIGERATING MACHINE. Andrew A. Kucher, Dayton, assignor to Westinghouse Electric & Manufacturing Co. Original No. 1,798,684, dated March 31, 1931, Serial No. 62,276, Oct. 13, 1925. Application for reissue March 29, 1933, Serial No. 663,409. 19 Claims. (Cl. 62-115)

## PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

## Dayton Rubber Issues 40-Page Catalog

DAYTON—Dayton Rubber Mfg. Co. has just issued a 40-page catalog describing the company's cog belt and V-flat drives.

Details of design and manufacture, and illustrations of numerous uses, as well as complete data tables and price lists for these products are offered.

This information makes it easy to select the proper combinations of standard belts and standard pulleys to meet almost any drive condition, according to company officials. The catalog's tables include more than 22,000 standard drive applications.

Tables are provided also for circulation of special drives, for use in situations where standard drives cannot be employed.

## Webster Electric Gets Patent on Optional Internal Bypass

CHICAGO—Webster Electric Co. recently has been issued a patent, part of the subject matter of which pertains to the use of the optional internal by-pass in fuel units, officials of the company state.

## Schmieding Opens Office As Patent Attorney

COLUMBUS, Ohio—Warren H. F. Schmieding, patent attorney, has established offices at 3050 A. I. U. Building here.

Mr. Schmieding has been closely associated with Frigidaire Corp. and Kelvinator Corp. during his 16 years of work in the refrigeration and air-conditioning field.

In addition to Mr. Schmieding's work as patent attorney, he is the inventor of several refrigerator patents now in use by manufacturers.

# The Buyer's Guide

Suppliers Specializing in Service to the Refrigeration and Air Conditioning Industries

## Quality by WEBER



—with a background of forty years of progressive development in the design and manufacture of world-famous retail store equipment—Weber products include the most complete line of Refrigerated Display Cases and Boxes—that offer the greatest dealer possibilities.

**WEBER SHOWCASE & FIXTURE CO., INC.**  
3700 Avalon Blvd.  
LOS ANGELES

## ACME PIPE COILS

"THE COILS BY WHICH OTHERS ARE JUDGED"

FLAT  
DOUBLE FLAT  
BOX OVAL  
CYLINDRICAL  
RECTANGULAR

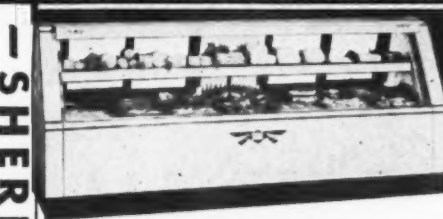


HARDENING  
ROOM COILS

ACME  
PROCESSED

JACKSON ACME INDUSTRIES, Inc. MICHIGAN

## SALES AGENTS & DISTRIBUTORS WANTED



We manufacture a complete line of **DISPLAY AND STORAGE EQUIPMENT FOR RETAIL FOOD STORES**

Refrigerator Cases of all kinds, Market Coolers, Reach-in Boxes, Meat Racks, Porcelain Partitions, etc.

Use the complete Sherer line to maintain your volume and profits as the demand for household boxes tapers off. Write us today.

Desirable territories now open. Write us for details.

**SHERER-GILLET COMPANY**  
MARSHALL, MICHIGAN  
ESTABLISHED 1852

## MANUFACTURERS

Seamless  
Brass & Copper Tubing  
Refrigerator Tubing  
Water Service Tubing  
Carbon Packed Tubing  
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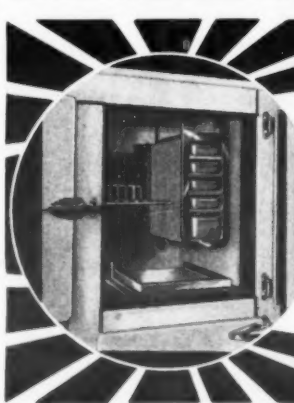
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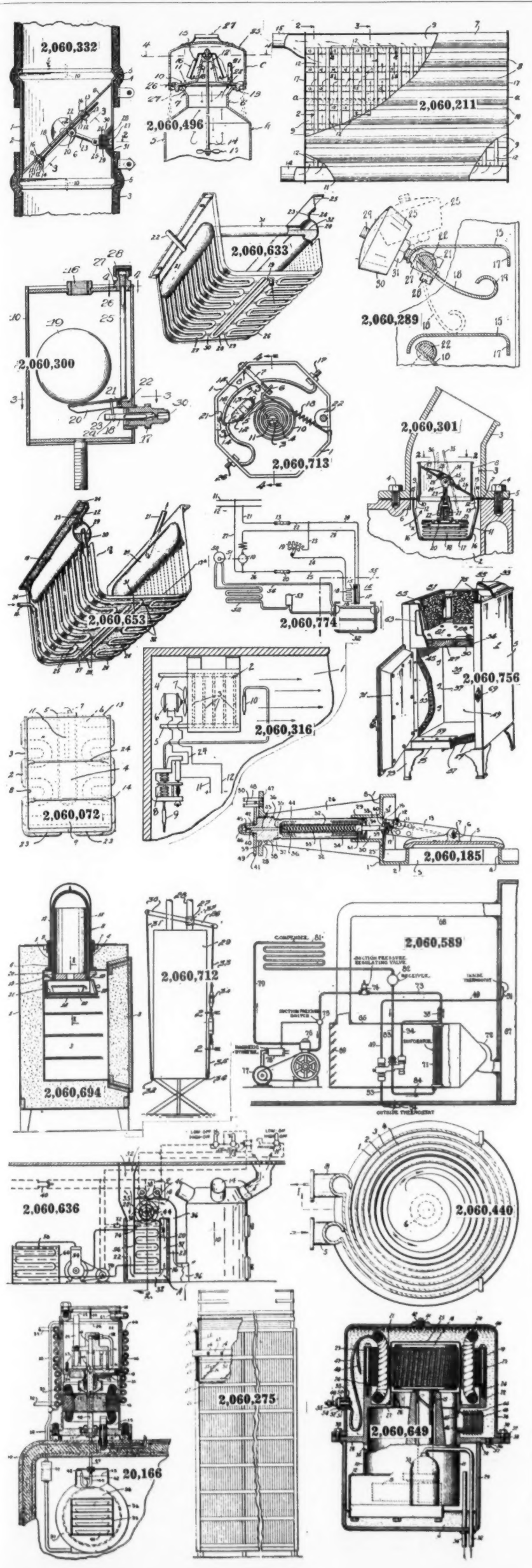
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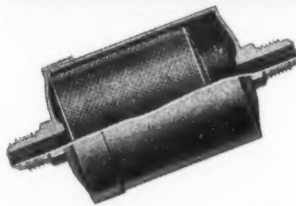
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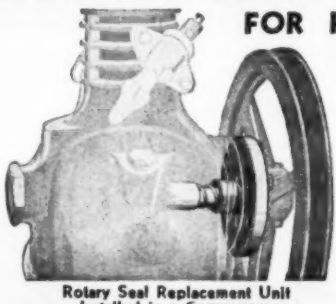
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## COMMERCIAL Service Manual

By K. M. NEWCUM

### Designs of Various Makes Of Water Valves

#### CHAPTER 6—Commercial Condensing Units—Continued

##### Water Regulating Valves

Electrimatic type W.R.P. water valve is illustrated in Fig. 83. It is of the bellows type and closes with the water pressure. The valve disc No. 229 is removable for cleaning or replacing by removing part No. 235. Note that a small bellows is installed between the atmosphere and the water circuit.

When nut part No. 183 is tightened a metal to metal seal is formed thus preventing water leaks around push-rod part No. 232.

Part No. 181 is the adjusting nut. Turning this nut to the right decreases the amount of condensing water, and vice versa.

The operating head pressure with this type valve may range from 50 lbs. to 185 lbs., adjustable with adjusting nut part No. 181.

Note in this design that the high refrigerant pressure affecting the main bellows part No. 176 is on the outside of the bellows, and on the inside of the bellows shell part No. 316. This valve will operate with city water pressures up to 150 lbs.

The Apex water valve is shown in Fig. 84. It is of the diaphragm type. Note adjusting nuts "B." To increase the head pressure or decrease the amount of water turn both adjusting nuts to the right (clockwise) evenly, and vice versa. This valve has a packing around push rod "D." The packing is of the same type as given under Kelvinator type "C" in Fig. 82. The seat may be removed by removing the bowl. The drain plug at the extreme bottom is convenient for removing sediment from the bowl.

Penn type XL1 water valve is shown in Fig. 85. It is of the bellows type, and the pressure affecting the bellows is exerted on the outside of the bellows and within the bellows cup. The Penn XL1 is equipped with a second bellows between the valve body and the atmosphere. This bellows precludes the possibilities of water leaks around the push rod.

Turning the adjusting nut to the right decreases the amount of condensing water and, what is the same thing, increases the head pressure.

The valve disc is removable. The Penn valve closes against the water pressure as it will be noted the inlet is above the seat. The head pressure range is from 35 to 140 lbs. The differential, that is, the difference in head pressure between full open and tight closed, is approximately 3 lbs. The standard valve will operate on city water pressures up to 100 lbs. and may be obtained for higher water pressures where necessary.

Fig. 86 illustrates the Art type CF-1 water valve. It is a bellows operated with the pressure applying on the external of the bellows. The adjusting nut is immediately below the main spring and bellows. Turning this adjusting nut clockwise increases the operating head pressure.

The packing around the push rod is kept tight by a small spring which automatically takes up for any wear on the packing.

The internal parts of the valve are removable out of the top of the valve body proper. They are removable as a unit.

The valve closes with the water pressure. The head pressure range is up to 150 lbs.

The old style Frigidaire water valve is shown in Fig. 87. It is a part of a complete control assembly as shown in Fig. 88. The needle point seat closes against the water pressure on "A." Fig. 87. Spring "B" works against the pressure bellows and weight shown in Fig. 88. Fig. 87 "C" is the adjusting nut, to increase or decrease the length of the valve stem. It needs to be adjusted or lengthened only when the water valve weight rod rides down and touches the bottom of the weight rod guide.

Inside of spring "B" is the packing

nut. It may be tightened with a nail or small punch as shown in Fig. 89. It should not be tightened to a point where the valve stem will bind.

The water valve proper is easily replaced by removing the four round-head screw driver-slotted studs holding it in place. The city water enters the valve below the seat.

Note Fig. 88 "A" and "B." This is a strainer assembly. The strainer screen may be removed for cleaning by removing nut "A." A clogged strainer on this or any water valve will restrict the flow of water, resulting in high head pressure and in most cases causing the high pressure

##### Electrimatic Valve

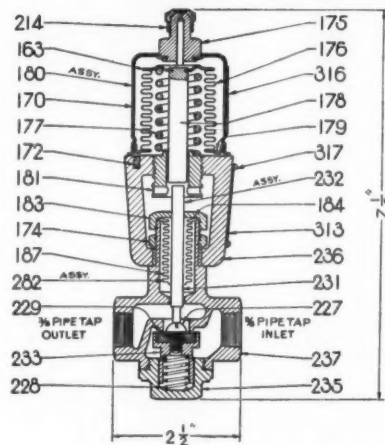


Fig. 83—Electrimatic type W.R.P. water-regulating valve.

##### Penn Control

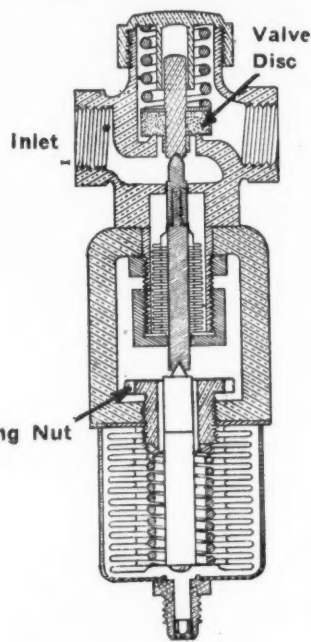


Fig. 85—Penn type XL1 bellows-type water valve.

##### Apex Diaphragm-Type Water Valve

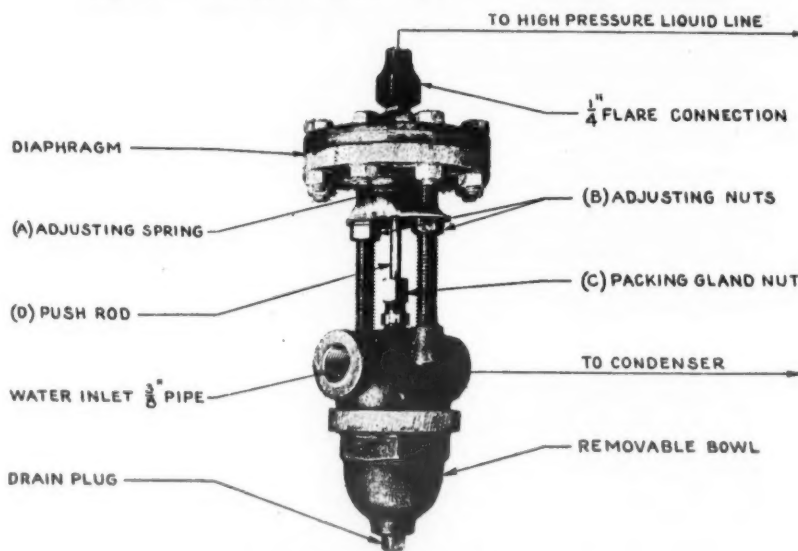


Fig. 84—Apex diaphragm water valve.

##### Art Bellows-Operated Valve

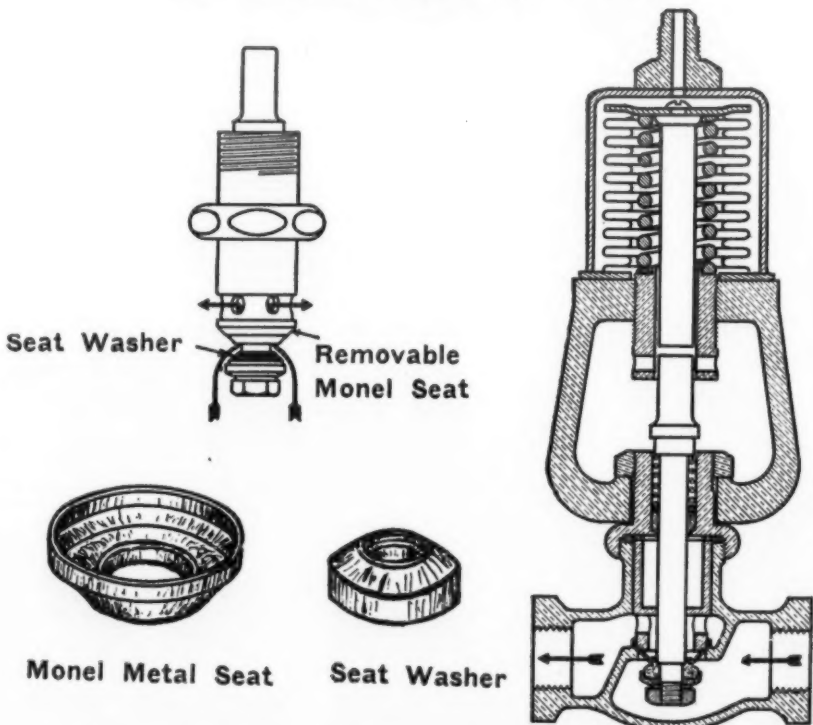


Fig. 86—Art type CF-1 bellows-operated water valve.

cut out to operate, stopping the compressor.

This Frigidaire control has a high and low pressure bellows. The high pressure is the smaller one of the two. The high pressure bellows is the one that operates the water valve. The bellows is opposed by the water weight, see Fig. 88. Moving the water weight out toward the end of the rod increases the head pressure and vice versa.

Excessive head pressure due to over-charge or air in the system is readily detectable with this weight type water valve, as the weight and weight arm will be up high allowing the valve to be wide open. Purging or removing the cause of the excessive pressure will cause the weight to drop back down to normal. The position of the weight and its relation to the head pressure should not be taken for granted, however, and a pressure gauge always should be used in lieu of guessing by the location weight.

A later type Frigidaire water valve may be seen in Fig. 90. This valve employs the bellows. The valve is adjusted at the valve stem "C." "B" is

(Concluded on Page 23, Column 1)



## Characteristics of Many Makes of Water Valves

(Concluded from Page 22, Column 5) a removable strainer screen. "A" is a blow out plug where a tire pump may be connected for blowing the water out of the condenser in case of a shut down during freezing weather, or whenever necessary to completely drain the condenser.

There are several other water valves

in use but space does not permit illustrating all of them. If the ones illustrated are studied a good general knowledge of water valves should be obtained.

The location of the water valve on a Curtis condensing unit is shown in Fig. 91. Note the high pressure connection on the side of the cylinder head. It is a tee with one side going to the water valve and the other

### Control Assembly

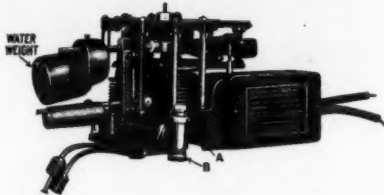


Fig. 88—Complete Frigidaire control assembly.

### Adjusting Packing Nut

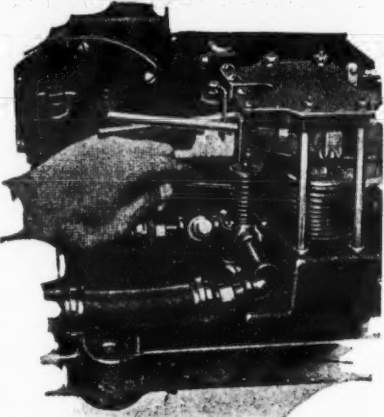


Fig. 89—Tightening packing nut on Frigidaire valve.

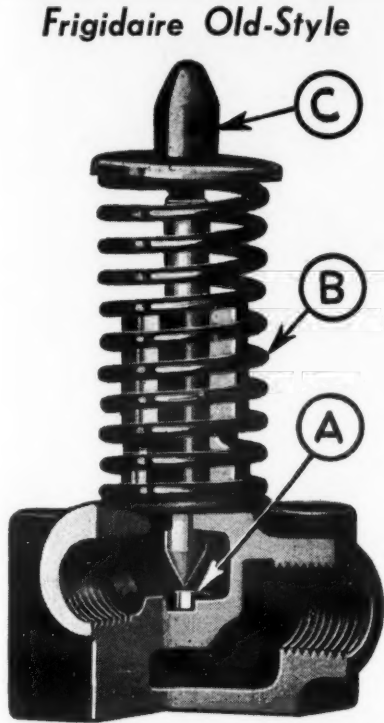


Fig. 87—Old-style Frigidaire valve.

## Water Valve on Curtis Machine

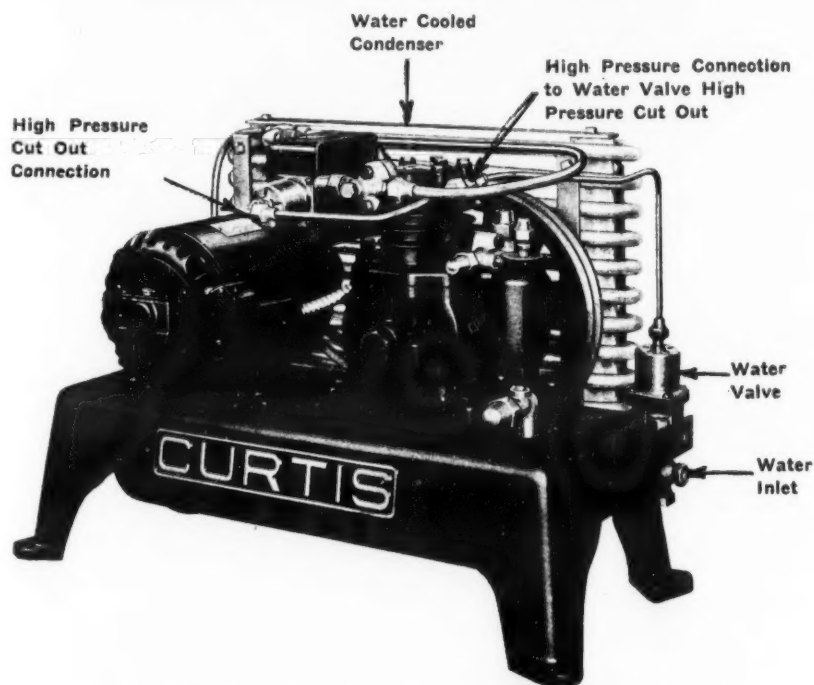


Fig. 91—Location of water valve on Curtis condensing unit.

## Kelvinator Refrigerant-Cooled Heads

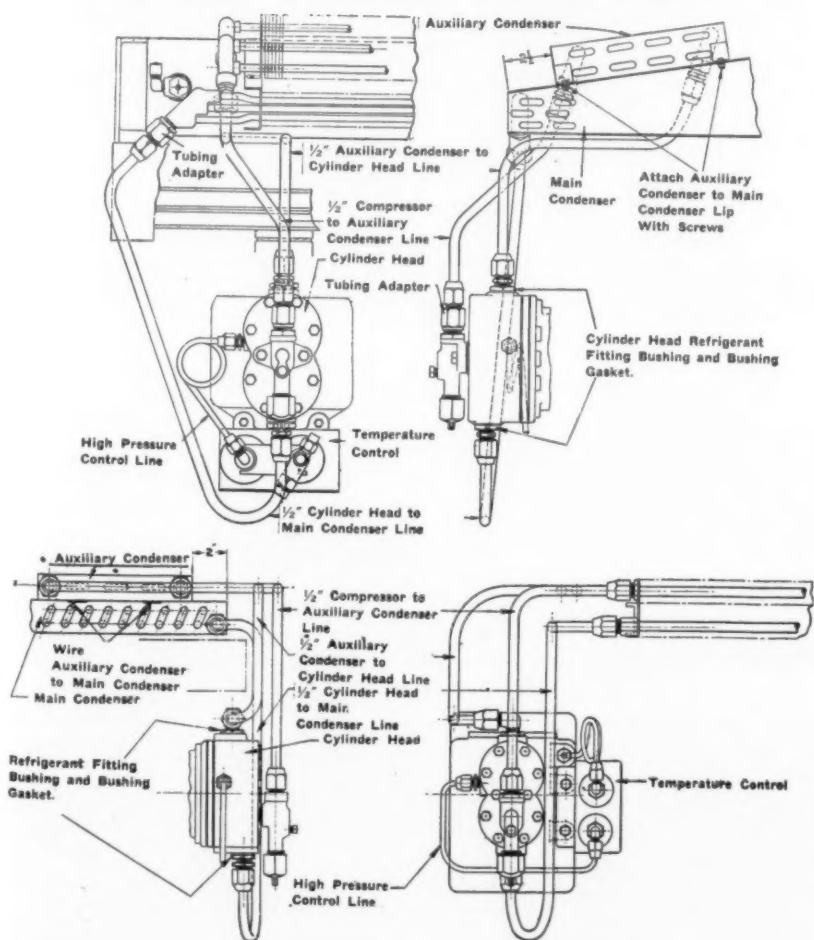


Fig. 92—Layouts of Kelvinator refrigerant-cooled cylinder heads on condensing unit models "BB" and "F."

side to the high pressure cut out on the motor control switch.

This high pressure connection should always be so that it cannot be closed off by the regular service valves. There have been installations where the high pressure connection to the water valve and high pressure cut out was taken off from the liquid line proper. This practice is dangerous: if the liquid line filter should clog up as it often does in operation the high pressure connection would then be on the low pressure side.

With the compressor in operation the refrigerant would be pumped down into the receiver. With extremely low or no pressure on the water valve, the valve would close and there would be no water to condense this refrigerant. Then with no condensing water the head pressure would rapidly increase. The high cut out in the low pressure circuit could not act, and the result would be a blown fuse, burned out motor or perhaps a burst condenser or receiver.

The same condition would exist if the liquid line shut-off service valve were closed. Keep this high pressure connection where it will always be on the high pressure side.

Sometimes water valves will cause the water lines in a building to hammer. Often this hammering noise is very noticeable and objectionable, especially in an apartment house. This hammering noise, if caused by the water valve, is directly traceable to the pulsation of the pistons which on each compression stroke opens the valve slightly and on the suction stroke allows the valve to close. This sets up a hydraulic action in the water lines, similar to closing and opening a water faucet very rapidly.

The high pressure connection on all the later types of water valves are equipped with a pulsation fitting which tends to even out, throttle, or deaden the pulsation of the pistons, to smooth out the action of the water valve to eliminate the water hammering.

If even with these pulsation fittings the valve still hammers, check the city water pressure. Higher water pressures cause louder hammering noises. If the pressure is excessive, install a pressure reducing valve, obtainable from the plumbing supply house, in the line ahead of the water valve. Set the water pressure at 60 lbs.

If the valve still hammers, install a piece of capillary tubing about 10 ft. long in the high pressure connection between the water valve and the compressor head. This small orifice tubing will take up the pulsations and smooth out the action of the water valve.

There are some exceptional cases where higher than normal head pressures are necessary. The best example of this condition is a multiple apartment house installation where the liquid lines run up several floors high. It has been found under such conditions that due to this high liquid head the evaporators on the lower floors were taking most of the liquid, and the top-most floors were being starved.

This resulted in long running time because with an insufficient liquid supply to the top floor the evaporators never got down to temperatures or pressures which kept the compressor in operation, while those on the lower floors functioned very satisfactorily.

In such cases it was found that by adjusting the water valves to increase the head pressure, the top floors were supplied with ample liquid refrigerant and the operating time of the condensing units decreased more than enough to compensate for the increased current consumption from

increasing the head pressure. In addition to this current saving the service calls to the top floor users were materially decreased.

## Cylinder Head Cooling

Most of the water-cooled condensing units are equipped with a water-cooled cylinder head.

Purpose of this feature is to utilize the cooling water after it has passed through the condenser to cool the cylinder head. Tail-end condensing water thus cools the cylinder head sufficiently to keep carbonization within the head down to an absolute minimum.

A water-cooled cylinder head may be noted in Fig. 79. It may be observed that while SO<sub>2</sub> and methyl chloride compressors have water-cooled heads, Freon-12 compressors may not have this feature as it is not considered necessary due to the low heat of compression of Freon-12.

Many manufacturers offer water-cooled cylinder head conversion units

for older compressors not originally equipped. The use of the water-cooled head is a definite advantage and conversions are recommended.

Some Kelvinator air-cooled condensing units are equipped with refrigerant cooled heads. This construction feature on models "BB" and "F" is shown in Fig. 92.

The function of the refrigerant-cooled, cylinder head is as follows: the hot gases from the compressor are forced into the auxiliary condenser where they partially condense. This cooled and partially condensed gas is then fed into the cylinder head where the cooler gas picks up heat from the cylinder head. The re-expanded and heated gas then passes from the cylinder head into the main condenser, enroute to the liquid receiver.

Conversion units from the regular to the refrigerant-cooled cylinder head may be obtained from Kelvinator and their application and location may be noted in Fig. 92.

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## Later Frigidaire Model

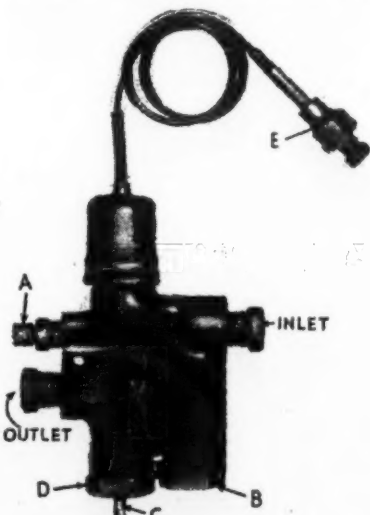


Fig. 90—Later-type Frigidaire valve, using bellows.

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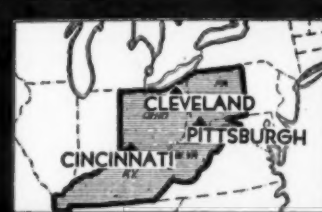
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